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Faculty Engagement with Learning Outcomes Assessment: A Study of Public Two-Year Colleges in Colorado

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Abstract

The problem addressed in this study was the assumption that faculty at the postsecondary level in the U. S. are not sufficiently or effectively engaged with learning outcomes assessment (LOA) activities and/or practices. This issue emerged in two primary ways within the Scholarship of Assessment (SoA) body of literature: (1) as a misalignment of learning outcomes assessment practices between faculty and their institutions, and (2) as a lack of transparency concerning what faculty are, in fact, doing with respect to LOA activities. Two-year colleges reportedly have particular difficulty in discerning whether or not these issues impact institutional efforts to ensure effective assessment practices; thus, this study sought to determine if faculty perceptions about institutional conditions that presumably elicit greater engagement with LOA aligned with academic leaders' perceptions within a community college system.

A new survey measure was developed and tested to explore faculty and academic leaders' perceptions on three newly established constructs, to examine the relationships between the three constructs, and to solicit faculty perceptions about their own levels of engagement with LOA practices. The new instrument was found to be both reliable and valid. Findings also reflected the presence of conditions that reportedly elicit greater faculty engagement, and that increased faculty engagement with LOA practices predicted achievement of effectiveness indicators for both faculty and academic leaders. A gap existed between groups concerning whether or not these conditions increased faculty

engagement with LOA practices. Faculty demonstrated they were engaged in LOA practices considered to be effective and achieve institutional indicators for effectiveness, although part-time faculty were considered less engaged than full-time faculty. Gaps existed between faculty and their institutions concerning how to use LOA data to improve teaching and student learning, and how to communicate evidence of student learning to the wider community.

Acknowledgments

My sincerest gratitude goes to my family and friends who without their support, I would not have made it through this endeavor. To my committee, Dr. Cheryl Lovell, Dr. Kathy Green, and Dr. Frank Tuitt, I am forever grateful for your guidance and commitment to my success. Most of all, I give credit to the little girl inside me that always knew I could it.

Table of Contents

List of Tables

List of Figures

Chapter One: Introduction

During the past 10-15 years, the notion of accountability, generally encapsulated in the construct of institutional effectiveness or quality assurance, has emerged as a predominant force for U. S. higher education (Ewell, 2009). Notably, the general public, government agencies, accrediting bodies, employers, parents, and students have begun to question the products, outcomes, and efficiencies of colleges and universities, demanding demonstrable results for their participation. In response to these pressures, postsecondary institutions have begun to position themselves in different ways in an effort to develop evidence-based indicators that "prove" (Ewell, 2009, p. 4) institutional quality and effectiveness.

One indicator policymakers and accreditors have hailed as imperative to demonstrating effectiveness is evidence of undergraduate student learning, most often demonstrated through student learning outcomes assessment, which includes assessment situated in the learning environment (classroom, lab, field, or online) and assessment processes designed to measure program and institutional success (Banta, 2002). Driscoll and Wood (2007) define learning outcomes assessment as "an educational process that fosters continuous attention to student learning and promotes institutional accountability based on student learning" (p. 4). Outcomes assessment used for accountability and/or accreditation purposes is reflected predominantly in summative indicators such as achievement reports, grade point averages (GPA), scores on standardized instruments,

course grades, and individual rankings -- assessments of learning that may reflect composite achievement, but may or may not reflect actual learning (Gray, 2002). Many teaching, learning, and assessment scholars and practitioners are beginning to note, however, that assessment conducted for accountability purposes creates an inhospitable environment for faculty to fully engage with assessment efforts (Hutchings, 2010). Hutchings notes that this environment has created faculty resistance to participating or engaging in learning outcomes assessment activities and practices at the classroom, program, and institutional levels.

Historical Background

The assessment movement in U. S. higher education surfaced in the mid-1980s as a result of external demands for "curricular and pedagogical reform, shifting patterns of accountability, and changes in instructional delivery" (Ewell, 2002, p. 3). Ewell explains that the primary forerunners of assessment as both a measure of quality and of student learning reportedly included emerging scholarship related to the undergraduate experience, student retention and behavior, program evaluation and scientific management, and mastery and competency-based learning. Influential publications such as *Four Critical Years* (Astin, 1977), *Measuring the Outcomes of College* (Pace, 1979), and *How College Affects Students* (Pascarella & Terenzini, 2005) led many higher education scholars and practitioners to begin embracing the idea that student learning and outcomes assessment were intricately entwined.

Foundations of outcomes assessment as a vehicle to propel and enhance student learning became widespread after the highly influential report *Involvement in Learning: Realizing the Potential of American Higher Education* (National Institute of Education,

1984) introduced the notion that assessment could and should be used as an effective tool to improve student achievement, student retention, and positive behavioral outcomes (Ewell, 2007). The report further provided the stimulus for the 1985 American Association for Higher Education (AAHE) and National Institute of Education (NIE) conference, wherein three primary recommendations materialized as essential for student learning: (1) high expectations for students, (2) active, not passive, learning opportunities, and (3) the importance of prompt and useful feedback (Ewell, 2002).

Simultaneously, the 1970s and 1980s saw the rise of systems thinking which included strategic and budget planning and program review, dawning a new language of management that included the term assessment to reflect program and institutional evaluation processes (Ewell, 2002; Middaugh, 2010). Internal administration and external accrediting bodies began to adopt the term assessment as a generic term that encompassed a wide variety of tactics to measure everything from student learning to curricular reform to program and institutional quality. External forces also began to influence the landscape of postsecondary education in the U. S. after landmark publication *A Nation at Risk* (National Commission on Excellence in Education, 1983) touted the imperative need for K-12 educational reform, alongside the eventual passage in 2002 of the highly contentious federal legislation *No Child Left Behind* (U. S. Department of Education, 2002). Thus, state and federal governments began to place pressure on postsecondary accrediting bodies to ensure colleges and universities produced transparent and demonstrable evidence that led to educated graduates and accountability to their constituents.

Finally, in 2006, then U. S. Secretary of Education Margaret Spellings appointed a blue ribbon panel, later known as the Spellings Commission, to develop a national strategy for reforming postsecondary education with particular focus on four key areas: access, affordability, standards of quality in instruction, and accountability of higher education institutions to their publics, students, families, and investors (Borden & Pike, 2008; Ewell, 2007). The Commission's final report spoke directly to the issue of assessment and argued that colleges would have a more vested interest in the success of its students if information on student learning outcomes, including practices and methods used in classrooms, were made public (U. S. Department of Education, 2006).

Institutional leaders have since been scrambling to produce evidence of student achievement to their accrediting bodies and external constituents in an effort to demonstrate assessment goals are being met (Beno, 2004). Consequentially, efforts to collect evidence have been systematically directed at faculty to gather and produce student data when higher education structural systems and processes have not traditionally supported such efforts (Bers, 2008). Ewell (2002) claims that these events and pressures have been highly unpopular with faculty as they have little theoretical or scholarly substance and smack of political and managerial interference with academic freedom. A growing tension between assessment for accountability and assessment for improvement purposes therefore ensued and remains in existence today.

Statement of Problem

The integral problem that was addressed in this study was the assumption that faculty at the postsecondary level in the U. S. are not sufficiently or effectively engaged with learning outcomes assessment activities and/or processes. This issue presents itself

in two primary ways within the Scholarship of Assessment (SoA) body of literature: (1) as a misalignment of learning outcomes assessment practices between faculty and their institutions, and (2) as a lack of transparency concerning what faculty are, in fact, doing with respect to learning outcomes assessment. Moreover, an abundance of evidence (Banta, Black, Kahn, & Jackson, 2004; Cohen & Brawer, 2008; Friedlander & Serban, 2004; Miles & Wilson, 2004; Rouseff-Baker & Holm, 2004; Serban, 2004; Skolits & Graybeal, 2007) indicates that two-year colleges have particular difficulty in discerning whether or not faculty assessment practices align with institutional assessment efforts, in recognizing the practices faculty actually engage in or utilize, and if institutional efforts to increase faculty engagement with assessment contribute to institutional goals for effective assessment systems.

Alignment with institutional processes.

Kramer, Hanson, and Olsen (2010) contend that congruent assessment systems, wherein faculty efforts to implement assessment processes and practices aimed at improving student learning -- and institutional efforts to build assessment processes aimed at demonstrating institutional effectiveness -- are rarely developed and virtually nonexistent in academic communities. The authors claim such integrated systems are essential for achieving institutional outcomes yet remain fragmented and are often developed without input from the academic community. Gray (2002) claims it is even harder to discern whether or not the assessment practices in which faculty engage are effective or even associated with institutional assessment systems and processes, as traditional measuring sticks; e.g., course evaluations or faculty promotion and tenure systems, lack documented evidence of assessment activities.

Kramer, Hanson, and Olsen (2010) also lament that the frameworks on which institutional assessment are built lack the mechanisms, direct lines, or mapping to program or classroom assessment activities to effectively capture or measure whether or not student learning actually occurs. Skolits and Graybeal (2007) extend the mapping dilemma to include a systematic lack of understanding regarding how to collect and analyze data that indicate how assessment practices in the classroom can be used to reflect institutional effectiveness. The authors also contend that a misalignment of faculty and institutional goals for assessment may negatively impact institutional credibility, the effectiveness of assessment processes and systems, and the achievement of assessment goals for quality assurance.

Transparency.

While the prevalent definition of transparency in higher education reflects the ability of an institution to publically demonstrate and display evidence that institutional goals, including financial and quality indicators, are being met (Ewell, 2008), Shilling and Shilling (1998) coined the term to describe the ability of internal and external constituents of higher education to view in plain sight any activity or process that demonstrates evidence of student learning, particularly faculty involvement, participation, or engagement in learning outcomes assessment practices. The SoA literature base uses this term frequently when addressing faculty engagement or involvement in learning outcomes assessment, most noticeably when claims from administrators, campus leaders, and researchers surface that the majority of faculty are not sufficiently engaged with learning outcomes assessment at three crucial levels within a given institution -- classroom, program, and institutional -- and within all types of

institutions (Andrade, 2010; Banta, 2005; Ebersole, 2009; Ewell, 2002; Ewell, 2007; Friedlander & Serban, 2004; Peterson & Augustine, 2000; Hutchings, 2010, 2011; Kinzie, 2010; Kramer, Hanson, & Olsen, 2010; Kuh & Ikenberry, 2009; Rouseff-Baker & Holm, 2004; Schilling & Schilling 1998).

Grunwald and Peterson (2003) assert that faculty have been notably absent in assessment processes, in and outside the learning environment, particularly in research and doctoral-granting institutions wherein faculty generally have responsibility for research activities that garner much of their time and attention. Friedlander and Serban (2004) further claim faculty are not effectively engaged at the two-year college level as reflected in accreditation reports from an increasing number of colleges receiving provisional or probationary status often due to inadequate learning outcomes assessment systems. These accounts indicate a systemic problem that what faculty are doing in relation to learning outcomes assessment is relatively unknown, creating speculation and assumptions about faculty resistance and disengagement.

If the general climate in U. S. higher education reflects one of a potentially disengaged faculty with respect to learning outcomes assessment, a plethora of auxiliary problems for institutional leaders and systems of higher education arise. First, Priddy (2007) claims that accrediting bodies and institutions have difficulty determining whether or not goals for student learning have been met when faculty are not engaged in assessment processes outside the learning environment. Subsequently, faculty engagement with learning outcomes assessment is not transparent to external agents that have tremendous influence and power regarding an institution's success, credibility, and viability. Second, Banta, Jones, and Black (2009) and Walvoord (2010) claim that

outcomes assessment processes outside the classroom often become ineffectual if they are not grounded in teaching and learning processes that extend from the learning environment outward to program and institutional activities. Ebersole (2009) concurs, claiming improvement of student learning and the purpose and goals for assessment can quickly break down if faculty are not involved in planning and development processes.

Ewell (2007) further posits that evidence of faculty participation is difficult to gauge in a system steeped in autonomy and academic freedom, thereby authentic accounts of the levels in which faculty engage with assessment remain elusive. Third, communication barriers (Haywood, Shaw, Nelson-Laird, & Cole, 2011) and faculty resistance (Hutchings, 2010) are allegedly imminent if the development of assessment processes is mandated top-down or externally, creating assumptions about faculty abilities and performance, further strengthening tension, mistrust, and impediments to successful assessment efforts (Schilling & Schilling, 1998).

Public, two-year institutions.

According to Peterson and Einarson's 2001 study of the uses and impacts of student learning assessment information, specific sections of higher education appear to have more difficulty developing effective assessment systems if faculty are not involved in the planning and development stages of assessment policies, systems, and/or processes. Associate degree granting colleges evidently produce fewer assessment reports, use significantly less assessment data in academic and faculty decision processes, and report using the least extensive learning outcomes assessment approaches than their counterparts at master's, baccalaureate, and doctoral research institutions. Serban (2004) explains that building, sustaining, and effectively utilizing student learning outcomes

assessment is a major challenge for two-year colleges due primarily to a lack of needed expertise and skills necessary to establish effective systems, and a lack of faculty expertise to guide those systems. Twombly and Townsend (2008) reflect that what is known about the relationship between faculty at community colleges and the teaching and learning process, particularly the effects of student learning outcomes assessment on institutional goal attainment, is close to nothing.

Miles and Wilson (2004) explain that a lack of knowledge about how to measure the effectiveness of assessment activities, what role faculty should play in developing that knowledge, and how to build campus-wide communities wherein congruence exists between classroom and program or institutional assessment activities, was a fundamental problem identified in the *21st Century Learning Outcomes Assessment Project*. One of the key reasons that the network of two-year colleges cited they were motivated to engage in the project was the difficulty in overcoming the "lack of incentive to engage in outcomes-based efforts resulting from external requirements for accountability, funding, and policy that faculty experienced as rarely tied to individual student learning and individual teaching" (p. 97).

Further, accounts that the predominant use of contingent or part-time faculty at two-year institutions erodes instructional quality have emerged (Arum & Roksa, 2011; Bok, 2006; Keeling & Hersh, 2012), lending this sector of higher education to speculation concerning effective teaching, learning, and assessment. Recent SoA literature indicates that the primary problem that arises from utilizing a majority of part-time rather than full-time faculty is the inability to help students attain their academic goals, as adjunct faculty have limited access to resources that promote successful

teaching and learning; e.g., training and development activities, office space to advise and communicate with students, and internal communication systems (Baldwin & Wawrzynski, 2011; Blaich & Wise, 2011; Nunley, Bers, & Manning, 2011; Skolits & Graybeal, 2007).

Additionally, the National Center on Education and the Economy's (NCEE) 2013 report on college readiness in Mathematics and English found that community college teachers often use less demanding and/or rigorous instructional methods than full-time and tenure-track faculty at four-year institutions including traditional assessment methods such as multiple choice tests, memorization of facts, and procedural rather than critical thinking exercises that have not proven effective to promote long-term retention or deep learning patterns (Black, Harrison, Lee, Marshall, & Wiliam, 2003; Bok, 2006; Maki, 2009; Nummedal, 1994; Shavelson, 2010). Kezar and Sam (2013) insist that the continued use of part-time and adjunct faculty ranks with little systemic orientation, socialization, evaluation, promotion policies, instructional development, and inclusion in planning and governance schemes contributes directly to the inability to meet President Obama's charge for the completion agenda to produce 50% more students with high-quality degrees and certificates by 2020. The problem of potentially substandard instructional quality extends to the broader discussion of the effectiveness and quality of two-year institutions in general, as reports that community colleges (including junior colleges) are cheating their students are beginning to emerge. The 2013 Report of the Century Foundation Task Force on Preventing Community Colleges from Becoming Separate and Unequal reveals that community college students receive lesser quality instruction than students at four-year colleges and universities primarily due to economic

disparities (including unequal financial aid and funding structures) that do not support parity in levels of instruction which, in turn, impacts student learning and engagement, resulting in a less-prepared workforce, lower persistence and completion rates, and fewer graduates. While the Report focuses primarily on racial and economic stratifications, evidence that community college students receive lower quality instruction than their peers at four-year institutions is surfacing, demonstrating that instructional quality is a critical issue for two-year institutions, and one that must be addressed through internal and external structural changes including equitable levels of training and development in assessment methods for *all* faculty.

Faculty voice in the literature.

The SoA literature includes very few faculty perspectives regarding what engagement means and/or looks like in practice to them. Direct accounts from faculty regarding what practices they engage in and why are even less available, indicating a possible unbalanced representation of administrator, researcher, and assessment practitioner perspectives on this topic. This omission may be a contributing factor to the alleged dilemma of faculty resistance to engaging fully or effectively with learning outcomes assessment, and may create unrealistic assumptions about alignment between practices. Although comments from faculty via blogs, websites, and electronic forums are plentiful, these perspectives are highly anecdotal, and did not serve the purposes of this study.

Despite the vast amount of literature emerging on the topic of learning outcomes assessment, empirical studies regarding faculty levels of engagement with assessment are also scarce. Of the twelve empirical studies found in the literature review for this study,

only seven reflect efforts to gather faculty perspectives on the topic of assessment (Ebersole, 2009; Emil, 2011; Peterson & Augustine, 2000; Haywood, Shaw, Nelson-Laird, & Cole, 2011; Kinzie, 2010; Skolits & Graybeal; Welsh & Metcalf, 2003). Of these, only two surfaced as an attempt to solicit faculty perceptions of their own and their institutions' engagement efforts with assessment: (1) the 2009 supplemental survey (Haywood, Shaw, Nelson-Laird, & Cole, 2011) to the national *Faculty Survey of Student Engagement* (FSSE) (IUCPR, 2009) (Appendix A), and (2) the *Inventory of Institutional Support for Student Assessment* (ISSA) (Peterson & Augustine, 2000; Peterson & Augustine, 1999; Peterson & Einarson, 2001) (Appendix B). Additionally, there is a noticeable gap in the literature related to community college faculty engagement with learning outcomes assessment. The latest reports on community colleges and learning outcomes assessment in general are from 2005, with only one recent study in 2011 (Nunley, Bers, & Manning, 2011) and no empirical studies emerging from this review.

Conceptual Framework

As this inquiry entails exploration of effective faculty engagement with learning outcomes assessment, and what various definitions may mean for student learning and institutional assessment practices, an appropriate lens by which to examine the literature and to establish a framework consists of a model that extends the Scholarship of Teaching and Learning (SoTL) through an emerging body of literature entitled the Scholarship of Assessment (SoA) (Banta, 2002). While a conversation about the merits of assessment as a best practice to ensure effective planning and sustainability of many units on campus, and even campuses themselves, is growing (Andrade, 2011; Borden & Pike, 2007; Shutt, Garrett, Lynch, & Dean, 2012), the focus of this review is to narrow the

broader conversation to an exclusive focus on how faculty engage with assessment processes within the community college environment and the subsequent impacts that engagement may have for their teaching, their students, and their institutions.

Scholarship of assessment.

Banta (2002) describes the SoA as "systematic inquiry designed to deepen and extend the foundation of knowledge underlying assessment" (p. x). The Scholarship of Assessment borrows many of its main premises and assertions from numerous other disciplines; e.g., cognitive psychology, educational psychology, psychometrics, undergraduate student development, the Science of Learning (Shavelson, 2010), and program evaluation, but is primarily situated in the context of the SoTL body of knowledge (Banta, 2002). The SoTL literature has been extended in many cases to include learning outcomes assessment as an additional branch of its scholarly and research foundation (Cottrell & Jones, 2002). Learning outcomes assessment in this context refers to assessment practices, programs, and measures that are specific to the enhancement, improvement, and/or enrichment of student learning, and are distinct from institutional evaluation methods; e.g., program review or self-studies, although these practices can (and do) inform student learning assessment processes.

After a thorough review of the SoA literature related to faculty engagement, learning outcomes assessment, institutional factors that influence engagement, and how these constructs relate to effective engagement, a theoretical model that binds these constructs appears to be lacking; therefore, a conceptual model was developed by the researcher to investigate the research questions. Various theoretical and empirical perspectives serve as inspiration for this model including Alexander Astin's (1991)

Inputs-Environment-Outputs (I-E-O) model, empirical research currently administered by the Indiana University Center for Postsecondary Research (IUCPR) regarding faculty engagement with assessment efforts at four-year institutions, research conducted by the Center for Community College Student Engagement (CCCSE) regarding community college faculty perspectives on student engagement, and empirical research conducted by the Center for the Study of Higher Education and Postsecondary Education (CSHPE) in the *Institutional Support for Student Assessment* (ISSA) project.

The Inputs-Environment-Outputs model (I-E-O).

Astin's (1991) I-E-O model (see Figure 1) offers a relevant yet simplistic model by which to explore and glean insights about effective processes and practices of faculty engagement with learning outcomes assessment, and offers a lens by which to examine the implications of faculty engagement with assessment practices. However, the I-E-O model possesses dimensions that do not necessarily translate effectively to the issues surrounding effective faculty engagement practices in assessment; e.g., *Inputs* in the original model are defined as the personal qualities a student initially brings to the educational program (Astin, 1991). In this study, characteristics that faculty bring to the educational environment are not in question, thus the *Inputs* tenant is deemed unnecessary for the investigation.

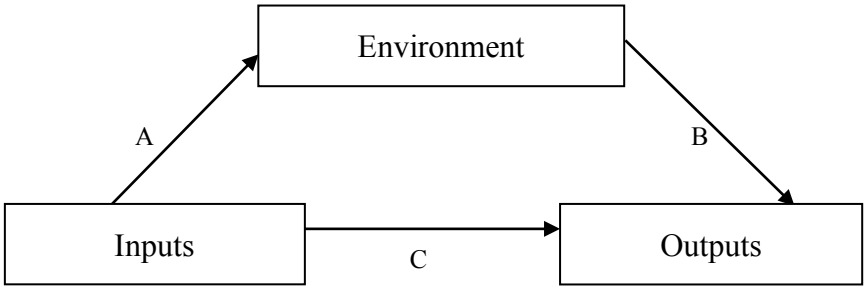

Figure 1. Input-environment-output (I-E-O) model for excellence in assessment. Adapted from *Assessment for Excellence,* Astin, 1991, p. 18.

Further, the I-E-O model indicates that the *Environment* refers to the student's actual experiences during the educational program including those things that the educator or institution actually controls to develop the student's talent. In this study, this tenant is re-established to reflect 12 institutional conditions that the institution must presumably have in place to elicit effective faculty engagement with assessment. *Outputs* are defined in the I-E-O model as "the talents we are trying to develop in our educational program" (Astin, 1991, p. 18). This tenant is re-established to reflect the outcomes or results of effective faculty engagement with learning outcomes assessment if the 12 institutional conditions are present and functioning within the institution. Thus, the labels *Inputs, Environment*, and *Outputs* are removed in this study to indicate distinctiveness from the I-E-O model.

Foundational studies.

The FSSE supplemental survey (Haywood, Shaw, Nelson-Laird, & Cole, 2011) provides an accessible foundation from which to extend research on faculty participation with and engagement in learning outcomes assessment. However, this survey did not address student learning outcomes assessment specifically, and was only administered to

four-year institutions, thus an opportunity arises to examine faculty perceptions and behaviors at a large portion of postsecondary institutions that has been relatively unexamined to date -- public, two-year colleges. Further, the 1999 ISSA (Peterson & Augustine, 2000) provides a highly comprehensive survey instrument that included faculty at associate of arts institutions, but did not include all types of public, two-year institutions. Finally, although the faculty companion survey to the *Community College Faculty Survey of Student Engagement* (CCFSSE) (Center for Community College Student Engagement, 2012) seemingly serves as an appropriate instrument by which to extend faculty engagement research, the FSSE supplemental survey and the ISSA are directly aimed at eliciting faculty perspectives on assessment practices and are thereby more appropriate foundations for this study.

The Effective Faculty Engagement with Assessment model (EFEA).

As faculty engagement with learning outcomes assessment is a relatively new phenomenon within higher education studies (Hutchings, 2010), few theoretical perspectives have emerged and even fewer empirical studies have been performed that examine the effects and/or relationships this phenomenon may hold for institutions and their constituents. A new conceptual model, the Effective Faculty Engagement with Assessment (EFEA) model (see Figure 2) was developed by the researcher to represent a summation of the SoA literature with respect to conditions that institutions allegedly must have in place, and the reported results of those conditions, in order to promote effective faculty engagement with assessment. These conditions are referred to as institutional conditions and outcomes indicators throughout this study, and are represented within the

EFEA model as interrelated constructs that together allegedly elicit greater faculty engagement with learning outcomes assessment.

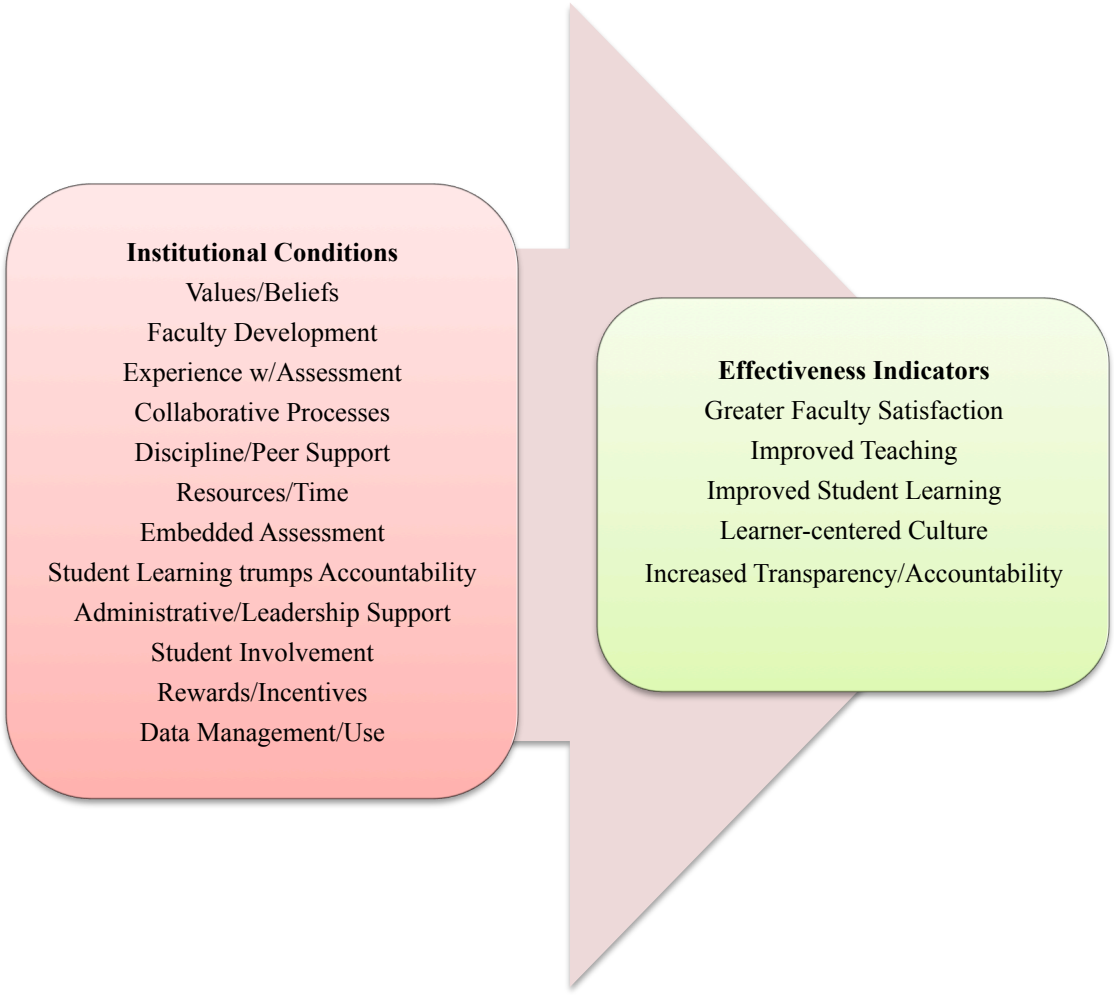

Figure 2. Effective faculty engagement with assessment (EFEA) model.

Developing a deeper understanding about whether or not these 12 conditions are necessary contributors to greater faculty engagement with learning outcomes assessment, and whether or not the 5 indicators are established as a result of the 12 conditions' presence and influence, requires a thorough examination of the attitudes and/or perspectives of the professionals closest to the adoption and use of assessment practices -- faculty and academic leaders. Thus, three constructs were conceptualized and developed

by the researcher to operationalize the conceptual meaning of the conditions and indicators, and to establish appropriate measures to assess faculty and academic leaders' perceptions about the conditions and indicators (see Figure 3).

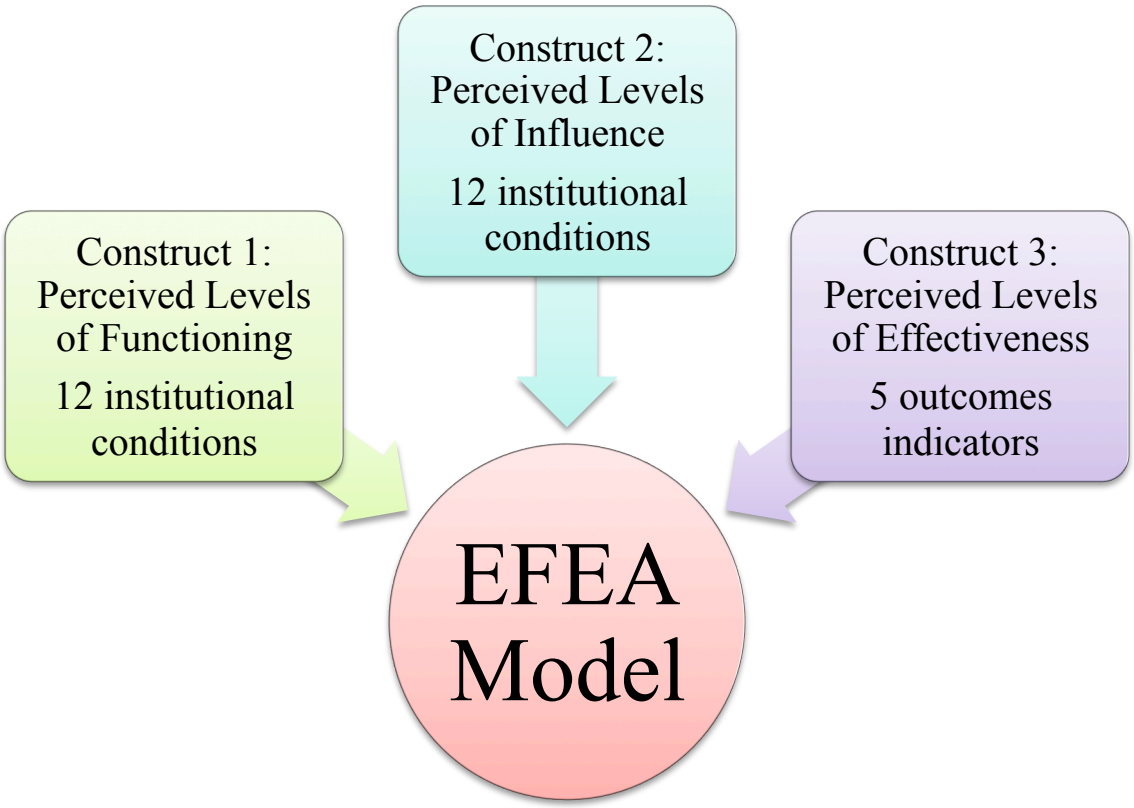

Figure 3. EFEA constructs.

Construct 1, Perceived Levels of Functioning, represents the hypothetical concept that the 12 institutional conditions are present and functioning at the participants' primary institution. Construct 2, Perceived Levels of Influence, represents the hypothetical concept that the same 12 institutional conditions increase, or influence positively, faculty engagement with learning outcomes assessment. Construct 3, Perceived Levels of Effectiveness, represents the hypothetical concept that the 5 outcomes indicators will be established if the 12 institutional conditions are present and functioning and increase

faculty engagement with learning outcomes assessment. These constructs provide a basis by which to answer the fundamental research questions concerning faculty and academic leaders' perceptions about whether or not the 12 conditions are present and functioning at their institution, if the 12 conditions increase faculty engagement with learning outcomes assessment, and whether or not the 5 outcomes indicators are established as a result of the 12 conditions. The constructs are conceptual and have not been grouped together in this fashion or empirically tested to the researcher's knowledge, and are further described in greater detail in Chapters 2 and 3 in this study.

Definition of Terms

Academic leaders.

Academic leader is a broad term generally used in higher education environments to describe non-faculty administrative professionals whose primary job responsibilities include oversight of academic, instructional, and/or curricular programs, and the personnel, operations, financing, and services that support those programs (Bers & Swing, 2010). In this study, an academic leader also exhibits some oversight responsibility for the development and implementation of learning outcomes assessment processes. In the pilot study, academic leaders are identified as full- or part-time appointed employees in an ongoing budgeted position, as opposed to a non-appointed contract worker (e.g., consultant), within Colorado Mountain College (CMC). Currently, CMC employs 5 positions: (1) Dean of Instruction, (2) Dean of Student Services, (3) Instructional Chair, (4) Division Director, and (5) Program Director.

In the larger field study, academic leaders are identified as full- or part-time appointed employees in an ongoing budgeted position, as opposed to a non-appointed

contract worker (e.g., consultant), within the Colorado Community College System (CCCS). However, CCCS comprises 13 institutions that do not possess standardized titles for academic leader positions; thus, the Presidents of each institution will be asked to determine which positions within their institution meet the definition provided in this study (see Chapter 3 Field Study Procedure section for a specific description of this process). In general, CCCS academic leader positions include Vice President of Academics, Vice President of Instruction, Dean of Instruction, and Director of Academic Services or Programs.

Accountability.

Accountability within the higher education context generally entails the ability of public and private colleges and universities to demonstrate responsibility and establish trust that their mission, goals, and expectations are being met (Ewell & Jones, 1994). Ideally, an accountability system does the following: (1) aligns institutional priorities with state goals, (2) allows students, legislators, leaders of educational institutions, business leaders, and other higher education constituents to view progress toward those goals, (3) provides a basis for making policy and funding decisions, and (4) emphasizes continuous improvement practices.

Alignment.

Alignment of institutional assessment systems is described as processes, practices, policies, and activities wherein faculty practices aimed at improving student learning and institutional efforts aimed at demonstrating institutional effectiveness are congruent and developed in conjunction with each other (Kramer, Hanson, & Olsen, 2010). Alignment is gauged in this study by the level or extent of agreement between faculty and academic

leaders in the CCCS concerning faculty engagement with learning outcomes assessment and the institutional conditions that reportedly elicit greater engagement.

Faculty.

The term faculty in higher education reflects the group of instructional professionals whose primary job responsibilities include teaching, learning, service, research, and/or curricular functions within a single institution or a postsecondary system (Cohen & Brawer, 2008). Similar to academic leader positions, consistency among faculty titles and employment status across institutions is inconsistent and may entail two to three assignments in one position; e.g., Department or Program Chair with faculty duties. Therefore, CCCS definitions for faculty positions will be in both the pilot and field studies: (1) full-time instructional faculty: faculty employed on a full-time basis for instruction including those with released time for research, and (2) part-time instructional faculty: adjunct and other instructors being paid solely for part-time classroom instruction (CCCS Sourcebook, 2011).

Faculty engagement with learning outcomes assessment.

Hutchings (2010; 2011) defines faculty engagement with learning outcomes assessment as the process wherein faculty participate or are involved in practices that are developed and implemented for the purpose of enhancing student learning goals and outcomes. These practices include participation or involvement in classroom, program, institutional, and scholarship-related activities, planning, or evaluation activities; e. g., faculty participation in development or training activities designed to enhance knowledge and skill in using learning outcomes assessment techniques to increase student learning.

Institutional effectiveness.

Middaugh (2010) describes institutional effectiveness as a process by which the institution gathers and analyzes evidence of congruence between the institution's stated mission, purposes, and objectives, and the actual outcomes of its programs and activities. How and in what ways an institution determines it is accomplishing its mission and goals are the means to assess quality and success; e.g., planning, decision-making, and resource allocation, evaluating programs and services, identifying and measuring outcomes across all institutional units, and using data and assessment results to inform decision-making.

Student learning outcome.

A student learning outcome is depicted by Suskie (2009) and Maki (2010) as a learning objective stated in terms of what students should know, be like, and/or be able to do upon completion of an educational assignment, a course, or a program. Measuring the attainment of student learning outcomes begins with constructing a precise measurable statement which specifies the performance, attitude, or behavior a student is to demonstrate. Examples include the ability to think critically, apply practical knowledge, express communication skills, demonstrate ethical principles, and/or establish interpersonal relationships.

Student learning outcomes assessment.

Interchangeable with learning outcomes assessment, student learning outcomes assessment is defined in this study as educational processes and practices that foster continuous attention to student learning and promote institutional accountability based on student learning (Suskie, 2009). This concept can be operationalized as a process by which faculty, staff, and the institution identify what students know and are able to do

upon completion of a program of study or an educational goal. Operationalizing includes measuring how students have acquired knowledge, skills, or attitudes, and how this information is used to improve teaching and learning; e.g., using a rubric to define levels of performance or competency. Learning outcomes assessment also includes formative and summative processes to assess learning. Formative processes generally include regular practices that inform faculty about students' learning; e.g., inquiry, discourse, group participation, or individual progress reports, whereas summative processes reflect evaluative methods at the end of a term or project; e.g., total exam scores or course grades.

Transparency.

Transparency in this context refers to the ability of internal and external constituents of higher education to view in plain sight faculty involvement, participation, or engagement in learning outcomes assessment practices (Hutchings, 2010; 2011; Schilling & Schilling, 1998). Transparency is evident when faculty participation in department curricular reviews, formative or summative classroom assessment practices, institutional accreditation processes, inter-institution and professional organizational activities, and/or scholarship activities intended to improve student learning outcomes is visible, demonstrable, applicable, and measurable.

Purpose of Study

In order to gain a more precise depiction of how and why faculty *actually* engage with learning outcomes assessment, more research is needed, specifically studies that examine practices within specific types of institutions in order to broaden the base of knowledge concerning conditions that may stimulate or elicit greater faculty engagement.

Additionally, the Colorado Community College Systems Office (CCCS) indicated a need to the researcher to identify institutional and faculty assessment practices at the 13 community and junior colleges to better understand if an alignment exists between the perspectives of faculty and institutions (e.g., academic leaders) regarding conditions that may elicit greater faculty engagement in learning outcomes assessment. Finally, the 12 organizational conditions that reportedly elicit faculty engagement with assessment and the 5 indicators of effectiveness as defined in the EFEA model have yet to be empirically tested; thus, a pilot test is proposed to determine the feasibility of a new scale prior to field administration.

Therefore, the primary purpose of this study was to contribute to the SoA literature by determining if faculty perceptions about conditions that presumably elicit greater engagement with learning outcomes assessment within the CCCS aligned with academic leaders' perceptions, illuminating faculty perceptions about their own practices in learning outcomes assessment, and providing a venue for greater faculty representation in the SoA literature. These objectives were accomplished by developing and testing a new measure designed to: (1) describe CCCS faculty and academic leaders' perceptions on three newly established constructs comprising 29 variables representing 12 institutional conditions and 5 effectiveness indicators; (2) examine the relationships between the three constructs by academic status; (3) examine the differences between these perceptions through scores on measures created from items that reflected the extent to which the 12 conditions were present and functioning, the extent to which the 12 conditions influenced greater faculty engagement, and the extent to which the 5 indicators of effectiveness were established a result of faculty engagement with learning

outcomes assessment; and (4) solicit faculty perceptions about their own levels of engagement and subsequent reasons for engaging with learning outcomes assessment.

The research questions in this study were:

Research questions.

1. What are CCCS faculty and academic leaders' perceptions about institutional conditions that presumably elicit effective faculty engagement with assessment as represented by the following constructs :
    a. Perceived Levels of Functioning?
    b. Perceived Levels of Influence?
    c. Perceived Levels of Effectiveness?
2. What relationships, if any, exist between and among the EFEA constructs with respect to academic status (faculty compared to academic leaders)? Do relationships among EFEA constructs differ for faculty compared to academic leaders? Further, is there a statistically significant difference in faculty and academic leader views about these constructs?
3. Do the two constructs of Functioning and Influence predict the outcome variable Effectiveness for the entire sample, for academic leaders and for faculty? Is prediction significantly different for those two groups?
4. What are faculty perceptions of their own engagement with learning outcomes assessment? Specifically,
    a. In what learning outcomes assessment practices do faculty engage?
    b. Why do faculty engage with these practices?
    c. How do faculty know student learning has occurred?

d. What kind of data inform changes faculty make to their teaching practices?

Delimitations

This study was bound by the emerging Scholarship of Assessment (SoA) literature base. While the topic of learning outcomes assessment is relevant to the ethos of higher education literature, this parameter was specifically selected to limit the topic of faculty engagement with learning outcomes assessment within a narrow frame to ensure diligent and precise analysis and interpretation. The study was also bound to the definition of faculty and academic leaders within the CCCS, as this population is accessible and represents archetypes identified in the literature. Faculty and academic leaders in two-year systems outside the CCCS and faculty at colleges and/or universities were not included in the field study due to the opportunity to capture a large percentage of both groups within one system within a relatively short timeframe.

Quantitative methodological design was selected due to the ability to access a highly homogeneous population, to reveal a large percentage of the two group's perceptions, and to represent data in a manner consistent with the CCCS expectations. Electronic survey data collection method was utilized as it provides the opportunity to query more individuals, increases the response rate, and provides a faster transmission and turnaround time than paper surveys or qualitative methods (Dillman, 2007). Research questions rather than hypotheses were used in this study as the constructs, variables, and instrument/measure had not yet been empirically tested, and there was little theory from which to form appropriate hypotheses.

Limitations

Although the entire population of faculty and academic leaders in the CCCS was queried in the field study, results are not be generalizable to two-year colleges outside the system nor to the broader two-year institutions in the state. Results are also not generalizable to faculty or academic leaders outside the state of Colorado due to the highly disparate nature of faculty and/or instructional positions and accrediting requirement across geographic, economic, and employment strata. Also, participant emails were not directly available to the researcher in either the pilot or the field studies, thus the request to participate came from administration offices in both institutions. This method may have had positive and/or negative effects, as it may have encouraged some to participate and it may have deterred others who may have felt coerced (Dillman, 2007). Requests from administration may also have affected non-response bias, as faculty who felt coerced by administration may very well possess attitudinal characteristics of non-engagement with assessment efforts. Conversely, the request process may have increased the likelihood of participation, as requests for assistance from CMC campus leaders and CCCS Presidents often serve as motivational factors.

Additionally, a quantitative design may have reduced the depth and richness of content that qualitative analyses often provide. Electronic survey data collection methods also may have restricted pure anonymity due to the open nature of most online networks, and/or posed potential technical problems with electronic links and software or hardware. The administration of the pilot survey was administered during the first half of the CMC summer semester, in which full-time faculty were often not on contract. This timeframe

may have had a negative impact on response rates, as this time of year may limit the number of faculty available for inquiry.

Significance of Study

A deeper understanding of faculty engagement with learning outcomes assessment must be established in order to either dispel or confirm existing observation and experience-based reports concerning faculty levels of engagement in learning outcomes assessment. Identifying the practices faculty actually engage in, why they engage in these practices, what evidence indicates that student learning has occurred, and what data are collected that inform curricular decisions helps those outside the teaching and learning arena to align assessment systems that are intentional, meaningful, and in partnership with the academic community (Priddy, 2007). The value in this investigation lies in the development of a more complete and accurate account of what is transpiring at the ground-level in postsecondary education regarding faculty engagement with learning outcomes assessment.

This account can further provide institutional leadership, governing bodies, and accrediting agencies with more accurate information about whether or not faculty perceptions and practices relate to program and institutional assessment efforts and whether or not current practices can be deemed effective or sufficient (Volkwein, 2003). A lack of transparency or misalignment of assessment goals may be resolved by obtaining direct accounts from faculty about their actions and subsequent decision-making processes. Examining the differences between faculty and academic leaders' perceptions about the environmental conditions that potentially elicit greater participation in assessment efforts may also assist leadership and governing bodies in developing a

clear understanding about the resources necessary to achieve institutional goals for learning outcomes assessment. A new measure in faculty engagement may also aid future researchers interested in expanding the constructs or items to include more contemporary theories and research.

Chapter Two: Literature Review

This study was designed to explore faculty and academic leaders' perceptions of effective faculty engagement practices with learning outcomes assessment in public, two-year institutions within the CCCS, and to discern what these practices may mean for achieving overall faculty engagement and institutional assessment goals. Specific issues that were addressed included the alleged misalignment of learning outcomes assessment practices between faculty and their institutions, and a reported lack of transparency concerning what faculty are, in fact, doing with respect to learning outcomes assessment. The Scholarship of Assessment (SoA) was used as a foundation for this examination using a new conceptual model, the Effective Faculty Engagement with Assessment (EFEA) model, as a framework to guide the investigation.

The literature review critically examined the existing practice-based and empirically-based literature with respect to faculty engagement with learning outcomes assessment to describe the current climate of learning outcomes assessment in undergraduate education, and to present: (a) definitions of faculty engagement with learning outcomes assessment at the undergraduate level, at various levels within an institution, and at the community college level, (b) factors that influence faculty engagement with assessment including factors of resistance and conditions that elicit effective practice; (c) exemplars of faculty engagement in practice at various institutions, and (d) impacts or implications faculty engagement has for teaching and learning

practices. The three newly established constructs, Perceived Levels of Functioning, Perceived Levels of Influence, and Perceived Levels of Effectiveness, were presented at the culmination of this review, as they represented a composite of the concepts, practices, and findings of the SoA scholarship and existing studies related to conditions that reportedly elicit faculty engagement with learning outcomes assessment.

Current Climate of Learning Outcomes Assessment

As noted in the introductory section of this study, learning outcomes assessment has become an instrumental vehicle for U. S. postsecondary institutions to demonstrate institutional effectiveness, typically reflected in student achievement and attainment of success indicators (Banta, 2002; Ewell, 2002; Middaugh, 2010). McClenney (2004) states that accrediting agencies are stepping up requirements for evidence of institutional efforts to improve student learning, congressional leaders are calling for increased accountability and transparency of educational gains, and business leaders are demanding closure of the growing gap between their workforce needs and the number of prepared workers available for jobs. Evidence that students are indeed learning has become paramount to quality assurance and performance indicators for community colleges and doctoral-granting research institutions alike.

Demonstrating what and how much students learn, however, is not an easy task for an educational system steeped in autonomy and self-evaluative processes. George Kuh, Director of the National Institute for Learning Outcomes Assessment (NILOA) claims that "learning what students know and can do and using evidence to make wiser decisions and improve student success remain huge challenges" (as cited in Jankowski & Provezis, 2011, p. 4). Learning outcomes assessment has emerged as a panacea of sorts to

address the changing landscape of accountability in higher education, creating opportunity for misuse and misapplication of its primary purpose of improving student learning (Banta, 2005).

Banta (2005) explains that two critical issues arise when assessment is encapsulated in accountability -- one, that faculty members resist becoming involved with student assessment because they don't understand its value or its role in institutional effectiveness; and two, that some policymakers have made attempts to require standardized tests to assess student learning, particularly at the associate's degree level wherein curricular and competency standards are likened to those in K-12 education. If faculty are not involved with the development of assessment processes, standardized testing may continue to be presented as the preeminent solution to demonstrate performance, a disastrous result in the higher education environment wherein one of its greatest advantage is the diversity of missions and educational offerings among its institutions.

Seybert (2004) suggests that issues surrounding assessment are particularly salient for the nation's 1,173 community colleges due to the enormous range of academic preparation and educational objectives these institutions are responsible for providing. Further, the author notes that community colleges are ill-equipped in data collection, management, and use and generally have fewer resources for faculty development and teaching and learning centers like their four-year and university counterparts. Peterson, Augustine, Einarson, and Vaughan (1999) found in their national study of associate and baccalaureate programs that associate-degree granting colleges are less likely to conduct studies about student performance and to use student-centered data collection methods.

The authors speculate that this may occur because students in associate degree programs are more likely to attend part-time, thus it is more difficult to engage them in assessment activities. Moreover, Nunley, Bers, and Manning (2011) posit that institutions that do not collect student assessment data are not able to make accurate academic decisions about their curricula, programs, or courses, creating a serious disadvantage when it comes to providing evidence that students are meeting learning outcomes.

Walter Bumphus, President and CEO of the American Association of Community Colleges (AACC), states that demands for greater accountability and transparency must be answered with assurances that students are prepared for the future and that achieving completion goals requires community colleges to fully examine and assess learning outcomes (Nunley, Bers, and Manning, 2011). However, Bumphus states that effective outcomes assessment can be an enormous challenge in a climate of increasingly scarce resources and an increasingly diverse student population, emphasizing that "community colleges must examine ways to overcome barriers such as lack of funds, inadequate coordination, and faculty resistance" (p. 4). Banta further claims that higher education in general does not have a good grasp on how many educators are truly engaged in measuring student learning, thereby calling instructional and teaching practices into question. Faculty involvement with assessment, however, greatly benefits the educational process in that defining learning goals and objectives enable faculty to tell whether or not students have mastered those objectives, allowing them to make changes in the way a course is taught until assessments demonstrate students are learning. Finally, Bumphus claims that so little has been written on the issue of student learning assessment related to

community colleges that a clear understanding of the roles of institutions and their agents [faculty] must become part of the national conversation for the foreseeable future.

Faculty Engagement in Learning Outcomes Assessment

Schilling and Schilling (1998) define learning outcomes assessment as "a range of methods for investigating the phenomenon and outcomes of students' learning" (p. 1). The authors also state that the typical purpose of assessment is to "make judgments about the effects of instruction or curricula, with an aim toward improving them" (p. 1). Driscoll and Wood (2007) concur, claiming that learning outcomes assessment is "an educational process that fosters continuous attention to student learning and promotes institutional accountability based on student learning" (p. 4). Additional definitions (Angelo & Cross, 1993; Banta, Jones, & Black, 2009; Keeling, Wall, Underhile, & Dungy, 2008; Maki, 2004; Middaugh, 2010; Palomba & Banta, 1999; Walvoord, 2010) also explicitly describe effective assessment practices as being intricately entwined with institutional effectiveness, program and curricular design, and teaching and learning practices, and offer a multitude of practices, activities, and methods for institutions, programs, and faculty to facilitate successful implementation.

While it appears that these definitions of outcomes assessment are directly related to the tasks of teaching and evaluating student learning, the question remains as to why high levels of tension surrounding assessment persist and even prevent faculty involvement in assessment planning and program activities. In a survey conducted by NILOA (Kuh & Ikenberry, 2009), 66 percent of chief academic officers and/or provosts indicated that gaining faculty support for and involvement in assessment remains a major challenge, and that "about four-fifths of provosts at doctoral research universities

reported greater faculty engagement as their number one challenge" (p. 24) to successful assessment efforts. The results echo similar reports that greater involvement from faculty in assessment initiatives that lead to real improvement in undergraduate teaching and learning at all levels within an institution is necessary, critical, and paramount to institutional success, but is lacking in actual practice (Andrade, 2010; Ebersole, 2009; Ewell, 2002; Peterson & Augustine, 2000; Hutchings, 2010; Hutchings, 2011; Kramer, Hanson, & Olsen, 2010; Rouseff-Baker & Holm, 2004; Schilling and Schilling 1998).

Kramer, Hanson, and Olsen (2010) claim that faculty cooperation is vital to the success of any assessment program due to faculty's primary responsibility of administering the assessments to students and making sense of them to their communities. Assessment conducted at the learning environment level reportedly impacts effectiveness efforts conducted at other levels as well. Shutt, Garrett, Lynch, and Dean (2012) report that faculty involvement in assessment activities that support student affairs programs is also essential to achieving student learning goals. These accounts of assessment as a faculty role often intensify the issue of faculty reluctance to fully participate in assessment activities, particularly at the undergraduate level, as an explicit account of what levels and to what degree 'greater faculty engagement' means at any level in the institution is not evident, thereby creating an impetus for the current study.

Institutional level.

Three major faculty unions in the U. S., the American Association of University Professors (AAUP), American Federation of Teachers (AFT), and the National Education Association (NEA) affirm the importance of assessing student learning outcomes and that faculty must have a central role in determining how it is to be done and how the results

are used (Gold, Rhoades, Smith, & Kuh, 2011). While the preservation of academic freedom and shared governance appear to be their priority, the representatives support the notion that faculty involvement with assessment activity is a crucial factor in institutional and program success, and is a "primary responsibility of faculty -- individually and collectively" (p. 7). Middaugh extends the premise that faculty serve as instrumental agents in institutional assessment by stating that "no college can be considered effective unless it can demonstrate that its students are learning" (p. 90). It appears that without faculty involvement in the development and delivery of assessment processes, ineffective, unproductive, and/or obscure processes may persist.

Hutchings (2010) claims that institutional success with learning outcomes assessment "lies precisely" (p. 7) in the hands of faculty, and that what matters first and foremost is faculty attention to being more explicit about goals for student learning, finding better ways to know whether those goals are being met, and shaping and sharing feedback that strengthens student learning. Banta (2002) further suggests that practicing assessment at the classroom level may be directly related to teaching expectations, but creating the infrastructure for effective outcomes assessment at the program or institutional level is just as essential to "preserve their own jobs and perhaps even the very existence of their institutions" (p. 19). These findings imply that faculty engagement with assessment is considered effective when faculty extend their practice beyond the learning environment and establish a direct line to all assessment activity within and across departments and within the institution.

Banta, Lund, Black, and Oblander (1996) further state that while assessment efforts should be collaborative across all levels of the institution, "faculty time and

administrative leadership" surface as the chief resource identified as critical to the success of assessment initiatives (p. 68). In the 2009-2010 academic year, NILOA conducted focus groups with 45 academic leaders (deans, provosts, presidents, and directors of institutional research) from a variety of institutions to learn more about the state of undergraduate learning outcomes assessment (Kinzie, 2010). Nearly all campus leaders reported the most effective assessment processes were adopted in strategic planning efforts, mission objectives, and/or institutional structures and mechanisms that enable and sustain the necessary support for success. Leaders also indicated that the vehicle to ensuring faculty engagement is to initiate the process outward from the learning environment and extend the flow into the infrastructure of the institution.

Keeling, Wall, Underhile, and Dungy's (2008) research support these premises, claiming effective assessment in practice fundamentally reflects a fidelity to mission/institutional identity; educational relevance; a holistic or organic nature; links to professional development activities for faculty, staff, and administrators; and a capacity for building community. Learning outcomes assessment must therefore be embedded in fiscal and policy contexts throughout the institution in order to gain buy-in, acceptance, and cultural change from internal agents, and to ensure faculty understand the inherent presence and importance of assessment to the broader context. What success looks like in practice varies across classrooms, programs, disciplines, and institutions, but should be reflective of the goals, values, and mission of individual learning environments and sensitive to the individuality of institutional contexts.

Program level.

Programs are described in many ways throughout the higher education system; programs can be academic; e.g., departments, disciplines, or academic units (Middaugh, 2010), or programs can be developmental in nature; e.g., development workshops, service learning, or campus activities (Banta, Jones, & Black, 2009). As the unit of analysis in this review is faculty behavior, programs are defined as an undergraduate academic unit, a department, and/or a college or school dedicated to related disciplines; e.g., General Education, Philosophy, or Engineering. Palomba and Banta (1999) state that while assessing individual student learning is an essential activity in any institution, assessment also reflects what student experiences add up to, and what these experiences imply about educational programs. These authors argue that the overriding purpose of assessment is to understand how educational programs are working, to determine whether or not they are contributing to student growth and learning, "whether the curriculum makes sense in its entirely, and whether students, as a result of all their experiences, have the knowledge, skills, and values that graduates should possess" (p. 5).

Faculty engagement at the program levels serves multiple purposes and benefits the institution in multiple ways; e.g., general education assessment programs that are course-based may include an evaluation of whether courses should remain in the program (Palomba & Banta, 1999). Additionally, these types of assessments are aimed at the ability to make judgments about the worth or quality of programs, and as such, inform institutional agents about the overall learning, growth, and development of groups of students, beyond individual students or courses. Developing learning goals and objectives for general education, for example, involves a group of campus representatives, most

importantly, faculty who teach the courses and have responsibility for the outcomes. Diaz-Lefebvre (2006) posits that "an important characteristic of an effective assessment program is that it be faculty owned and driven" and that "institutional efforts at assessment at the educational program level ultimately depend on research, assessment, and improved learning at the classroom level" (p. 2).

Banta, Jones, and Black (2009) assert that although leadership is imperative at all levels, assessment has the most impact when the responsibility for seeing it through resides primarily at the academic unit level. "Because unit faculty and staff have developed the goals for student learning, so must they assess student achievement of those goals" (p. 12) in order to apply their understandings to improve curricula and instruction. Examples of effective faculty engagement with assessment at the program level include integrating outcomes assessment with the program review process, typically understood and accepted by faculty to be a valuable institutional process; faculty review processes that combine course evaluations, and assessment, department, and self-study reports; system-wide exchanges of self-studies, site visits, and peer critiques of assessment processes; and incorporation of assessment of student learning in state-mandated program review processes (Banta, Jones, & Black, 2009).

Learning environment level.

Rouseff-Baker and Holm (2004) state that although accrediting bodies make clear the preferred units of measurement for academic assessment are courses, programs, or departments, it is also essential to link assessment of learning outcomes to the classroom and individual student learning. Walvoord (2010) extends this premise by claiming that success in learning outcomes assessment begins in the learning environment, wherein

faculty and students are allegedly engaged in activities that induce, enhance, promote, and/or invite learning activity. In Umbach and Wawrzynski's 2005 study about relationships between faculty practices and student learning, findings reflect that overall, students reported higher levels of support for learning, and greater gains in personal/social development, general education knowledge, and practical competencies when faculty were more engaged in assessment activities that stimulated active and collaborative learning activities; e.g., portfolios, capstone projects, and/or self-assessments.

Ebersole (2009) claims that demonstrating they are part of the assessment process occurs when faculty

> consider the outcomes to be assessed; develop appropriate assessment instruments and ensure their reliability and validity; use data to establish interventions to improve learning; reassess to determine the success of the interventions; and communicate the results of the assessment process

to the wider community of constituents (p. 1). These results reflect Blaich and Wise's (2011) position that assessment results from the classroom, beyond course grades, must be compiled, disseminated, and discussed at the program and institutional levels in order to discern whether or not outcomes were met, if measures were appropriate, and if the evidence they collected reflects effectiveness objectives.

While the key to improving learning for postsecondary students lies in the hands of faculty (Ebersole, 2009), individual classroom-level evaluations often never make it beyond the boundaries of an individual course, and more often do not yield information that assesses the effectiveness of a course or program. Thus, Ebersole argues that the demand for faculty participation in assessment processes beyond their individual courses

becomes increasingly important to gauge whether learning is occurring, where learning is occurring, and what changes can be made to improve learning. Blaich and Wise (2011) suggest that as faculty collect and use assessment data from their courses to make changes to their courses, assignments, and/or expected outcomes, these actions translate to changes in existing curricula, which is then discussed and adopted or rejected at the program level, which in turn, can be used as evidence of institutional effectiveness, if assessment goals and outcomes are aligned from courses through programs to the institutional level.

Finally, Haywood, Shaw, Nelson-Laird, and Cole (2011) determined that effective engagement with assessment entails more than just reflecting on or adjusting one's teaching practices or assigning grades. It requires sharing information with others who are affected by the results; e.g., other faculty who teach the same course, program faculty and staff, and students, in order to build shared responsibility for the outcomes. These experiences make clear the notion that what happens at the classroom level with respect to assessment not only informs curricular design and teaching methods, but directly impact program and institutional effectiveness measures and output.

Two-year institution level.

While many of the reasons that faculty engagement is crucial to assessment at different levels within institution cited above can be applied to virtually any type of postsecondary institution, the unique environment and character of the community college warrant specific attention for several reasons. First, these institutions enroll nearly half of all undergraduates in the U. S. (Twombly & Townsend, 2008), with disproportionately high numbers of low income, students of color, adult, and first

generation students. Banta (2005) claims that students who enter with such diverse educational goals are more likely to transfer, stop out, or drop out, and are thus in greater need of faculty support and feedback regarding their academic progress. Such diversity demands that community colleges afford these populations the same opportunities to succeed in higher education as other, more privileged populations who may have more access to educational environments with greater resources and/or access to faculty. Banta, Jones, and Black (2009) assert that "a community college's mission statement represents its promises to the community and therefore should play a significant part in its assessment processes" (p. 221).

Other issues influence the ability of community colleges to effectively engage faculty in assessment efforts including a lack of resources and/or funding for professional development opportunities and reward systems, lower faculty pay structures, on average, than four-year institutions, and an instructional workforce that is predominantly part-time (Mellow & Heelan, 2008). Twombly and Townsend (2008) report that in the 2006-2007 academic year, 37% of all undergraduates were taught by community college faculty that were professionals with other jobs or were adjunct or part-time instructors. These conditions leave little time for adequate training in assessment or participation and/or opportunity to engage in institutional assessment efforts.

Seybert (2004) further indicates that two-year institutions also do not regularly collect data regarding the assessment practices their faculty are engaged in, and/or how they use data collected for classroom or grading use. *The Community College Faculty Survey of Student Engagement* (CCFSSE) has since provided a baseline attempt to collect information from faculty about effective educational practices in community colleges,

although its primary purpose is to assist institutions in using faculty data to inform decision-making and formulate improvements in student learning and persistence (McClenney, 2004). Faculty practices in learning outcomes assessment are not yet addressed in this survey. Nunley, Bers, and Manning's (2011) examination of two national surveys administered to institutional research officers and chief academic officers about learning outcomes assessment in community colleges reflects a serious concern about the lack of faculty involvement, as only 29 percent of the respondents agreed with "the primary driver for learning outcomes assessment at my institution is our faculty" and only 14 percent agreed that "most faculty are involved in learning outcomes assessment" (p. 17).

Factors that Influence Faculty Engagement

Grunwald and Peterson (2003) declare that "gaining faculty involvement in campus activities outside of classroom teaching or regular committee service is not an easy task" (p. 175). Haessig and La Potin (2004) assert that "faculty involvement in assessment is critical, but is often hard to achieve" (p. 42). Schilling and Schilling (1998) report that faculty have a natural suspicion to assessment that is generally grounded in their personal experience with a process that has so often been dysfunctional and produced unfavorable results about their performance as teachers. Haviland (2009) explains faculty typically resist only after assessment initiatives have started and stalled for a multitude of reasons, only to be asked to re-invest in other, time-consuming yet unproductive endeavors without any evidence of their worth. Fendrich (2007) presents a scathing personal account of her experiences with outcomes assessment, consciously

deciding to abstain after many good-faith efforts for fear of more "bureaucratic baloney" (p. B6).

Ewell (2009) claims that the current culture of accountability alienates and discourages many faculties from fully engaging in the process of assessment, eclipsing the original intent for an assessment process that informs teaching and learning. Such alienation can negate the real promise of assessment: that each and every student has the opportunity for and access to accurate and meaningful evaluation about their knowledge, skills, and/or progress from the primary purveyors and custodians of their learning experience -- the faculty (Hutchings, 2010). Hutchings (2011) continues this premise, stating that faculty *must* be included in the dialogue and development about effective assessment processes in order to create a more positive climate for serious work on teaching and learning and to present a transparent account of their contributions to an effective learning environment, and program and institutional effectiveness.

Conversely, Driscoll (2006) explains that faculty resistance to engagement is beginning to lessen, not because of required participation, but out of interest and commitment to student learning and improving the art and craft of teaching. Once the connections to scholarship, teaching, and learning begin to surface, and a clear understanding that institutions need to examine their institutional intentions on their own terms (Maki, 2004), faculty begin to ascend as the predominant guardians of the process from the inside out. Wehlberg (2008) declares that although the assessment movement occurred because of accreditation and legislation, an intrinsic need to know what and how students are learning has ignited fervor in some faculty that increases their participation in assessment activities. These perspectives and findings, however, lend the question as

to why some faculty still resist and create obstacles to engagement and others to fully engage or engage effectively.

Academic culture.

NEA union representative Mark Smith (Gold, Rhoades, Smith, & Kuh, 2011) states that the principle of academic freedom emerges often as a point of contention for many faculty when asked to support and develop assessment initiatives. As faculty are responsible for developing the content of what they teach, and how that content is taught, these are academic decisions that unions believe should be left to the professional. Academic culture has also laid the groundwork for rewards and recognition in research and publishing, primarily at research and doctoral granting institutions, while teaching has remained a secondary, perfunctory responsibility (Middaugh, 2010). Peterson and Einarson (2001) propose that faculty resistance stems from "disincentives for involvement" (p. 635) such as values and reward systems that give priority to research and publication activities rather than those related to teaching. Associate professor of higher education Adrianna Kezar states, "Faculty rewards have nothing to do with the ability to assess student learning. I get promoted for writing lots of articles, not for demonstrating learning outcomes" (as quoted in Wilson, 2010). The 2009 NILOA survey results also reflect that faculty at the most selective institutions are the least involved in assessment at the program or institutional level, and are most likely to resist providing data to demonstrate evidence of student learning. Kuh and Ikenberry (2009) claim this may be due to cultural aspects at prestigious universities wherein faculty wonder why "documenting something already understood to be superior is warranted -- seeing little to gain and a lot to lose" (p. 5).

Institutional policies and processes.

Angelo (2002) argues that for assessment to thrive in the academy, faculty culture must be aligned with institutional structures and leadership for change, meaning that if administrative leadership does little to promote and support an initiative, the faculty aren't going to feel particularly motivated to intervene and rescue the operation. Union representatives (Gold, Rhoades, Smith, & Kuh, 2011) further indicate that faculty confusion or inexperience with assessment processes is often misread and misunderstood by administration and/or external agencies as resistance, particularly when an administration develops an assessment system without faculty input, or a new system is imposed by an outside agency such as the state government. Demands that faculty follow this system, and that evidence of student learning should be documented in a rigid or standardized format, create barriers to faculty interest in and curiosity toward how assessment can be used to enhance their teaching and their students' experiences. Banta, Lund, Black, and Oblander (1996) draw attention to another source of possible contention -- the highly contextual nature of assessment practices. What works on one campus or in one classroom may not be effective or successful in another similar environment, making it difficult to translate effective practices, let alone create a system that reflects institutional values and mission and meets public demand.

Professional development.

One of the key features that fuels faculty resistance to fully engaging in assessment includes a lack of knowledge and formal training about the purposes of student learning assessment and how to interpret subsequent data (Andrade, 2010; Banta, 2004; Blaich & Wise, 2011; Ewell, 2009; Hutchings, 2010; Kinzie, 2010; Schilling &

Schilling, 1998). Graduate education in most countries is designed to develop scholarly expertise in one's primary discipline, and training in teaching, learning, and/or assessment methods are a rarity in most students' experiences. Subsequently, faculty become experts in their discipline but generally use teaching methods they learned by example. Until recently, assessment has also not been a primary element in professional development or required in-service activities, as most teaching and learning centers have shied away from topics and/or strategies related to topics faculty may see as redundant or unnecessary (Haviland, 2009).

Inexperience and unfamiliarity become powerful obstacles to involvement, alongside a desire to avoid appearing ignorant or uninformed. Seeking professional development in itself can create animosity because it implies that current teaching methods are inadequate and that faculty pedagogical knowledge and skill competencies need to be improved. Schilling and Schilling (1998) describe a dismal environment wherein "for the vast majority of faculty on most campuses, assessment is not a topic with which they have even passing familiarity" (p. 20), although they may likely be engaged and not recognize it. Banta (2005) states that if faculty development opportunities are developed and presented by other faculty, particularly a peer in their discipline, faculty members will be more inclined to participate.

External forces.

Reports that higher education is underachieving with respect to undergraduate student learning (Bok, 2006) and learning is limited due to "an institutional culture that puts undergraduate learning at the bottom on the priority list" (Arum & Roksa, 2011, p. 3) have placed faculty at the center of responsibility for why graduates do not meet

employer demands, national test scores are dropping, and the U. S. is losing ground internationally with respect to higher education rankings and ratings. Government mandates, legislation, and reports have also influenced the notion that higher education is not transparent in the goods and services it provides to consumers (Ewell, 2002). Grunwald and Peterson's 2003 study of faculty satisfaction with institutional and classroom student assessment found that if assessment is linked to accountability, faculty are less likely to become involved. Kramer, Hanson, and Olsen's (2010) work also reflects this view as "too often assessment is done for the sake of external entities or extrinsic rewards" (p. 34), thus knowing where and how to make changes to improve student success becomes blurred and more difficult to maintain. Consequently, if assessment is viewed as someone else's agenda, it is unlikely that faculty will participate in activities that do not lend themselves directly to their success.

Culture of evidence.

Blaich and Wise (2011) have been extensively involved in the Wabash Study, a "longitudinal project designed to provide participating institutions with extensive evidence about the teaching practices, student experiences, and institutional conditions that promote student growth across multiple outcomes" (p. 3). The ongoing study has evolved from the initial focus of examining primary obstacles to effective practices toward aiding institutions with how to use the evidence they collect, seeing that institutional agents, notable faculty, struggle with how to connect assessments with improving student learning. Wehlberg (2008) claims that very few faculty have an understanding, let alone the skill set, to use data to make departmental or institutional decisions, and it is not yet apparent to many faculties that assessment actually makes a

difference for their students' learning, to program improvement, or to institutional effectiveness. The benefits of assessment remain uncertain to many faculty, with the exception of programs that have specialized accrediting bodies and must meet specific standards in order to retain fully recognized status. Dissemination and usefulness of assessment data depend on how those who generate the data make sense of them and adjust their practices accordingly (Bers, 2008).

Assessment vs. grading vs. evaluation.

A fundamental belief that faculty are already "doing" assessment through grading procedures (Hutchings, 2010; Schilling & Schilling, 1998; Suskie, 2009) presents another force of resistance for engagement with assessment. Brookhart (2004) explains that assessment is not measurement or evaluation, but rather a broader process that involves collecting information about something (e.g., student learning) to be used for some purpose (e.g., curricular reform). Typical assessments include providing immediate feedback to students to inform the learning process (formative), and making instructional decisions that reflect overall achievement, progress, or learning (summative). Evaluation in the classroom context means using assessment information to make a judgment about something (e.g., assigning a final grade), thereby making assessment markedly distinct from grading. Black, Harrison, Lee, Marshall, and Wiliam (2009) claim that one could look at assessment as the journey versus evaluation as the snapshot, meaning assessment requires the gathering of evidence of student performance over a period of time to measure learning and understanding (evidence of learning could take the form of dialogue, journals, written work, portfolios, or tests along with many other learning tasks), whereas evaluation occurs when a grade is assigned after the completion of a task,

test, quiz, or learning activity. Suskie (2009) further posits that evaluation can aid faculty in discerning strengths and weaknesses of teaching and learning activities and what changes may be necessary in goals and teaching strategies.

Brookhart (2004) also suggests, however, that the lines between and among assessment, grading, and evaluation are blurry, complex, and persistently overlap, creating aversion to discerning their uses. The difference between assessment and evaluation is not transparent to everyone, even to those who develop and implement the processes. Evaluation can be synonymous with summative assessment practices, while at the same time be a broader concept than assessment to include program and curricular reviews. Faculty may be reluctant to request information and assistance with assessment as presenting an image of ignorance may reflect on their job performance, thereby reinforcing traditional grading strategies which may or may not elicit student learning. Banta (2004) claims that institutions that establish clear guidelines and language for assessment practices help faculty to understand what is expected of them in relation to learning outcomes assessment, grading, and evaluation (whether student, course, or program) in order to meet stated goals. Faculty must be part of the process that develops these guidelines and definitions, paving a path of clear communication and partnerships in the process.

Language barriers.

Schilling and Schilling (1998) contend that assessment has a wide variety of meanings and is a persistent source of confusion and opposition on many campuses, "particularly for faculty" (p. 1). The language of productivity used in accountability initiatives too often carries the connotation of industry or politics, deterring faculty from

engaging fully in conversations about the benefits and value of assessment for pedagogical purposes (Hutchings, 2010). Hutchings also claims that the language of assessment has become a barrier to effective faculty involvement, as terms such as "accounting, testing, evaluation, evidence, measurement, benchmarking, and so forth" (p. 9) are difficult to apply in many disciplines such as Liberal and Fine Arts, and have thus become viewed as part of the management culture (Walvoord, 2010). Thomas Nelson-Laird, assistant professor at the IUCPR (2011) claims the FSSE instrument has revealed that faculty perceptions of assessment change rapidly if it is couched in certain terms, stating "if it sounds like the business of the university, they will reject it" (personal communication, November 9, 2011).

Workload.

Assessment has become viewed by many faculties as an additional responsibility to their already taxed schedules.

> Student performance evaluation is so embedded in the everyday work of teaching, testing, and grading that many faculty members interpret calls for documenting outcomes at the program or institutional level--if not as an outright threat--as redundant or worse: a waste of time and resources more profitable invested elsewhere (Kuh & Ikenberry, 2009, p. 26).

Effective assessment practice also most often requires faculty consensus and collaboration in changing existing pedagogical and curricular processes, and agreement on how student learning will be measured (Haessig & La Potin, 2004). Not only does a cooperative environment require additional committee work, but such collaborative is foreign to the academy, which is steeped in fractionated disciplines and inability to share resources and/or "play nicely together" (Ewell, as cited in Hutchings, 2010, p. 4), weakening faculty interest and involvement in activities outside their own classrooms.

Effective Practice in Assessment at the Undergraduate Level

Effective is defined by the online *Merriam-Webster Collegiate Dictionary* as "producing a decided, decisive, or desired effect, <an effective policy>" (http://www.merriam-webster.com). The terms effective, successful, good, and best are used interchangeably throughout the SoA literature to describe effective practices, and will thus be the case in this review. Middaugh (2010) claims that learning outcomes assessment has become the primary tool for demonstrating the ongoing effectiveness of colleges and universities, for "understanding and improving the ways in which students learn", and for "developing and enhancing those institutional structures that support student learning" (p. x). Priddy (2007) states that academic institutions which focus on improvement of student learning perform higher on accrediting reviews than those that focus on compliance processes. Keeling, Wall, Underhile, and Dungy (2008) assert that assessment is a means, not an end, confirming Banta's (2002) position that assessment is a tool through which institutions accomplish important purposes and goals, not an empty process in itself.

Based on these premises, to be effective is to align all assessment activity in the service of student learning, secondary to accreditation standards, accountability measures, and performance requirements. Priddy (2007) describes effective practice in assessment as an institution-wide commitment to improving student learning across all levels and functions of the organization that includes a compelling vision, a set of commitments, and explicit learning outcomes that drive planning and implementation. Thus, scrambling to meet an accrediting body's expectations or standards signifies assessment as a requirement, a compliance activity, and an administrative mandate -- all which create

fodder for faculty resistance to engaging fully in the process (Ewell, 2009). The Higher Learning Commission (HLC) of the North Central Association (NCA) further declares that

> institutions that have made the leap to assessing student learning as a means of advancing the institution tend to be involved in dynamic, ongoing dialogues about what students should be learning and why. This dialogue helps institutions know what successful learning looks like and how it is relevant to the world beyond the institution (p. 63).

While a collective and comprehensive definition of what constitutes effective practice in assessment in undergraduate education appears somewhat elusive, Priddy (2007) claims that institutions across the country are essentially seeking the same result with respect to assessment outcomes -- that programs, activities, and instruments of measurement effectively represent student learning, program viability, institutional effectiveness, and goal attainment. Shutt, Garrett, Lynch, and Dean (2012) mirror this perspective claiming that institutions must show how its programs and services contribute to student learning, thereby providing an impetus for best practices and demonstrating student learning attainment. Assessment in the broader context of higher education encompasses the adoption of assessment tools and practices to enhance the learning of the whole student, which is beginning to emerge in student development, operational services, and library programming. Therefore, it can be inferred that while institutional missions, goals, constituents, and environments may look very different and contextual, the conditions necessary for effective assessment; e.g., planning, leadership, resources, and implementation strategies, are highly congruent in nature.

Principles and Conditions of Effective Assessment Practice

In 1992, the American Association for Higher Education (AAHE) developed the *Principles of Good Practice for Assessing Student Learning* (see Appendix C) in an effort to establish

> a vision of education that entails high expectations for all students, active forms of learning, coherent curricula, and effective out-of-class opportunities; to these ends, we need assessment--systematic, usable information about student learning--that helps us fulfill our responsibilities to the students who come to us for an education and to the publics whose trust supports our work (AAHE, 1992, p. 1).

These principles were grounded in the pursuit of one goal -- to bring together a single document that describes effective practices from collective practitioner experiences to assist institutions with developing and implementing a successful assessment process.

Ten principles of good practice in assessment.

In 1996, Banta, Lund, Black, and Oblander developed an expanded version of AAHE's (1992) nine principles to include a tenth principle that addresses the importance of cultivating an environment that is open to, supportive of, and committed to assessment endeavors, and provides a more detailed account of the importance of collective leadership in assessment at all levels within a given institution: "Assessment is most effective when undertaken in an environment that is receptive, supportive, and enabling" (p. 62). This statement infers that successful assessment requires establishing an environment that invests in administrative and academic leadership, commitment from non-academic units of the institution, adequate resource allocation, faculty and staff development, and adequate time to plan, communicate, collaborate, develop, implement,

and evaluate. These ten principles mirror more recent recommendations made by Priddy (2007) who asserts academic institutions do assessment best when:

> Assessment is best understood as the means and student learning itself as the end; shared responsibility and collective capacity are intentionally developed; internal leaders, of different types but most assuredly the faculty, are identified and developed; collaborative processes that actively engage people replace concerns about buy-in; institutions jump in and learn as they go along; program review becomes an area of shared faculty/administration interest; changed, parallel or separate core processes permit attention to enduring issues; and institutions begin wherever they chose to begin and from there develop the means to complete a full cycle of outcomes assessment. (p. 58)

Kramer, Hanson, and Olsen (2010) extend Priddy's point that faculty cooperation is vital to the success of any assessment program due to their primary responsibility of administering the assessments to students and making sense of them to their communities. Using Alverno College in Wisconsin and Truman State University in Missouri as exemplars by which to evaluate assessment programs at other institutions, Shavelson (2010) describes effective practice in assessment as "a coherent system created by faculty and embedded in a supportive culture" (p. 74). Middaugh (2010) further professes that rather than view assessment as an external requirement imposed by an external entity, institutions best serve their constituents when they embrace the opportunity to measure student learning as a vehicle to propel the institution toward better communication, improved learning, and goal attainment. Finally, the National Institute for Learning Outcomes Assessment (NILOA) collected the perspectives of academic leaders from focus group interviews conducted in 2009 and found "best practices in assessment weave assessment into organizing structures" (Kinzie, 2010, p. 1).

Conditions that Influence Effective Faculty Engagement

In order to engage faculty fully and effectively in assessment, "we must link it with work they are already engaged in" (Banta, 2002, p. 14). Ebersole's (2009) study on faculty attitudes and levels of engagement found that faculty with different levels of experience may understand the process of assessment differently; e.g., participation in professional development opportunities and discipline-related activities promoting the use of assessment. This study grouped faculty levels of experience with assessment and provided a venue for faculty to disclose their range of experiences. Results reflect a significant correlation ($p<0.05$) between faculty who self-report they are highly engaged at the classroom level and the likelihood of higher engagement in assessment at other levels within the institution. The findings suggest that the more experience faculty have with assessment, the more they actively engage, have positive experiences, and possess higher levels of satisfaction with the process.

As a companion to the *National Survey of Student Engagement* (NSSE), which collects first-year and senior student information about the nature and quality of their undergraduate experience, the *Faculty Survey of Student Engagement* (FSSE) is designed to measure faculty members' expectations of student engagement in educational practices in the U. S. (Indiana University Center for Postsecondary Research, 2010). The 2009 administration of the FSSE incorporated a supplemental survey that yielded responses from 3,335 faculty members across 46 institutions. This study found that faculty who were more actively involved in assessment in their classrooms had higher levels of satisfaction and belief in their institutions' efforts. These studies propose that faculty who report they have a strong belief in the value and utility of assessment demonstrate that

belief through action by engaging in assessment activities beyond their classrooms. Grunwald and Peterson's (2003) study of faculty satisfaction with institutional and classroom student assessment indicates these beliefs can be elicited and therefore vested in the interest of the broader community if internal and external conditions that promote faculty value systems are in place; e.g., paid leaves, stipends, mini-grants, and/or course reduction.

Haywood, Shaw, Nelson-Laird, and Cole (2011) also claim that faculty who perceive that their institution is invested and committed to assessment, as indicated by support and resource mechanisms, are more likely to incorporate assessment into their own work. If this is true, then this viewpoint reveals a direct link to Priddy's (2007) assertion that all assessment activity must be situated in student learning first, above all other institutional needs, thereby making the entire process deliberate and transparent. Kramer, Hanson, and Olsen (2010) observed that if institutional leaders provide intrinsic motivation and rewards (e.g., scholarly work or development opportunities), assessment will become more "consequential" (p. 34) to faculty as the success of their students and their discipline becomes the driver for involvement. In a practical environment, assessment processes must be cyclical, responsive, adaptive, and embedded in all institutional functions in order to be effective (McEady, 2006; Middaugh, 2010; Priddy, 2007).

Strategies to facilitate faculty involvement include release time, clerical or support staff, visible incentives and rewards, and most important, professional development opportunities to ensure faculty members are adequately prepared to implement assessment (Angelo, 2002; Banta, Lund, Black, and Oblander, 1996; McEady,

2006). Grunwald and Peterson (2003) found an institution's assessment purposes, administrative support patterns, and faculty instructional impacts are significant predictors of faculty satisfaction with their institution's approach to and support for student assessment efforts. Suskie (2009) indicates that faculty must feel respected and empowered by leadership, thus flexibility must be built into all assessment processes. This sense of ownership can motivate faculty to remain engaged and their interest sustained in assessment over time, long after an accreditation self-study or internal audit is complete.

Shavelson's (2010) case study analysis of colleges and universities identified by policy analysts or researchers as having "a particularly innovative and/or effective assessment program" (p. 79), revealed that campuses that included student outcomes and learning assessment activities as part of their promotion and tenure policies signaled the importance of these elements to faculty, increasing their levels of engagement with and reinforcing their interest in assessment. Further, Welsh and Metcalf (2003), in their research about faculty perceptions of assessment, found three reasons why faculty support assessment efforts: (1) the primary motivation for assessment was improvement of teaching, learning, or curricular practices rather than accountability to others, (2) they are personally involved in the planning and implementation of assessment activities, and (3) systems and processes are "outcomes-oriented" (p. 40) and centered on student learning.

Additionally, if faculty are assisted with meaningful data collection and use from institutional research and assessment offices, the likelihood of participation beyond an annual report increases significantly (Bers, 2008; Shulman, 2007; Wehlberg, 2008).

Borden and Pike (2008) suggest that faculty are more likely to participate in educational development activities related to teaching and learning activities than assessment, thus increasing knowledge and skill in collecting and analyzing data should be encapsulated in instructional topics. Blaich and Wise (2011) concur, claiming the next steps in developing the necessary expertise for assessment is to create mechanisms to train campus leaders in the skills they need to utilize data. As a result, faculty engagement with learning outcomes assessment is encouraged, shaped, and influenced by the following institutional conditions that, when present, allegedly result in effective practice (see Table 1).

Table 1
Institutional Conditions that Promote Effective Practice

Faculty-related conditions	Institution-related conditions	Effectiveness indicators
Faculty values, attitudes, perceptions, and/or beliefs are respected, solicited, and considered in decision-making processes.	Assessment language, processes, and outcomes are embedded into institutional policies, practices, and procedures.	Faculty exhibit or perceive greater levels of satisfaction with their institution's assessment efforts and strategies.
Faculty development opportunities are plentiful, relevant, current, and available.	Assessment processes, programs, instruments, and activities are established in the service of student learning above all else, including accreditation mandates, legislative performance expectations, and/or public demands for increased accountability.	Faculty levels of effectiveness in teaching performance improves.
Faculty understand what is expected of them and have ample opportunities to demonstrate proficiency and gain experience in assessment.	Assessment processes have influential and committed leadership and support, particularly at top administrative levels.	Impacts on student learning are measurable, demonstrable, and linked directly to strategies implemented in the learning environment.
Faculty across departments, units, schools, and/or programs are provided opportunities to work together to create learning communities and supportive, collaborative environments.	Students are encouraged and provided opportunities to engage in assessment processes.	A learner-centered culture is nurtured, expected, and thrives.
Faculty are encouraged to seek peer advice and experience, including those outside the institution, and to pursue scholarly activity related to assessment.	Rewards and incentives to participate in assessment processes are adopted systematically including pay and performance systems.	Transparency of student learning is ever-present and accountability to institutional goals are achieved.
Faculty are awarded the necessary time and/or resources to plan, develop, pilot, implement, adjust, and evaluate assessment strategies and processes within reasonable and efficient timeframes.	Institutions provide training and educational opportunities in data collection, management, and use.	

The 12 institutional conditions that presumably elicit faculty engagement with assessment are presented in two categories in this table, Faculty-related and Institutional-

related conditions, to reflect how the literature represents the distinction between conditions that are affected by or impact faculty, and conditions that are controlled by or impact the institution. These 12 conditions are re-labeled as indicators in the Methods section of this study for clarity in measurement terms. Faculty-related conditions reflect environmental practices, processes, and/or activities that require the direct participation of faculty and/or have a direct impact on faculty in order to elicit faculty engagement in learning outcomes assessment at all levels within an institution. For example, if faculty are provided opportunities to work collaboratively with peers in their discipline at other institutions on assessments projects, faculty levels of satisfaction with their institution's assessment efforts will likely increase. Institution-related conditions reflect environmental practices, processes, and/or activities that the institution must employ, promote, and implement to elicit faculty engagement in learning outcomes assessment at all levels within an institution. For example, if assessment is embedded in institutional policies; e.g., tenure or promotion policies, faculty are much more likely to consider assessment work important and relevant to their success (Peterson & Augustine, 2000).

The effectiveness indicators represent the outcomes that will reportedly result if the Faculty-related and Institution-related conditions are present and functioning within the institution. For example, if faculty are awarded sufficient time and/or resources to plan, develop, pilot, implement, adjust, and evaluate their own classroom assessment strategies and processes, they will likely derive a greater understanding of how to use student data to make changes to their courses, adjust their teaching strategies, develop a deeper understanding of student progress and/or learning needs, thus increasing student learning (Smith & Barclay, 2010). These 12 conditions and 5 indicators, however, have

not been empirically tested in any scholarship to date, indicating the need to perform confirmatory analyses prior to making inferences about their viability or representativeness in the SoA literature.

Exemplars of Effective Faculty Engagement in Practice

Shavelson (2010) describes the assessment program at Alverno College as a coherent system created by the faculty and embedded in a supportive culture. "Coherence is achieved by articulating and integrating educational mission, values, assumptions, principles, theory, and practice" (p. 74). This environment reflects how assessment has been tightly woven into the fabric of the institution's mission with assessment for learning as the thread that binds all practices, programs, and promises, and fully describes the ethos of effective practices as defined in this review. Shavelson also describes Truman State University's assessment program as an example of exemplary practice due to the "faculty's role in developing and implementing the program and the type of assessment information provided to them" (p. 77). While Truman State did not erect a separate office for assessment, believing it may reduce faculty interaction, the president and vice presidents immerse themselves in the leadership roles and serve as role models for campus cultural change. They further established a common vocabulary and organizational focus on assessment for student learning, conveying the importance of the initiative, and ultimately enabling deeper and more meaningful involvement by faculty and staff.

Assessment practitioner Amy Driscoll and assistant professor Swarup Wood (2004) describe a constructivist process for general education assessment at the University of California, Monterey Bay (CSUMB), wherein faculty begin the assessment

process by focusing on aligning learning outcomes with elements in their own courses, enabling them to create protocols for programmatic and institutional levels, and eventually collaborating with other discipline faculty to analyze evidence of student achievement of outcomes. This approach allows faculty to construct their knowledge, or "make meaning" (p. 14) from their experiences and interactions, creating an environment that is intentional, respectful, and holistic in nature. "More importantly, it has led to significant improvements in student learning" (p. 14), as cyclical interviews reveal 90 percent of faculty have made changes and improvements directed to student learning as a result of their collaborative work.

Texas Christian University's (TCU) assessment processes have been hailed as innovative and transformative (Wehlberg, 2008) in their collaborative approach to general education wherein the outcomes are created and approved by the faculty senate. The development of measures for these outcomes is delegated to faculty who teach in various areas, but the responsibility for all student learning is cohesive and integrated across the many disciplines, leading to an assessment program that "reflects the richness and complexity of a liberal arts education" (p. 58) and serves as a model for other large schools within the institution. As part of the American Association of Colleges and University's (AAC&U) Liberal Education and America's Promise (LEAP) initiative, the Valid Assessment of Learning in Undergraduate Education (VALUE) project seeks to contribute to the national dialogue on assessment of college student learning (Banta, Griffin, Flateby, & Kahn, 2009).

The VALUE project builds on a philosophy of learning assessment that "privileges authentic assessment of student work and shared understanding of student

learning outcomes over reliance on standardized tests administered to samples of students outside of their required courses" (AAC&U, n.d.). Results of this philosophy include the collaborative development of 15 rubrics by teams of faculty and academic professionals on campuses from across the country.

This initiative responds to calls for collaboration and peer support wherein faculty volunteers from traditional disciplinary areas work together to develop collective assessments that can be used across disciplines and across institutions. Further, a virtual community, the Collaborative on Authentic Assessment of Learning (CAAL), is currently being developed to provide an online space wherein institutions can upload, share, and discuss their campus assessment results using the VALUE rubrics. This collaboration is intended to expand communication across campuses regarding common instruments, compelling findings, potential benchmarks for student success, and best practices of assessment using rubrics and e-portfolios (AAC&U, n.d.).

The Wabash study (Blaich & Wise, 2011) is a three-year project designed to create a deliberative process for using evidence that institutions can build on for improvements in student learning. The study is led by Teagle Assessment Scholars, a group of faculty, deans, researchers, and administrators who provide a wide range of support including:

- Helping institutions use assessment evidence they already have, including data from the National Survey of Student Engagement (NSSE), the Collegiate Learning Assessment (CLA), Cooperative Institutional Research Program (CIRP) surveys, senior exit interviews, or capstone projects.

- Working with faculty and staff to develop and use different kinds of assessment evidence to improve student learning.
- Reviewing programs and institutional research offices.
- Helping institutions prepare for accreditation.
- Developing formative assessment plans for strategic, curricular, and program planning (Center of Inquiry, Wabash College, n.d.).

Blaich and Wise (2011) indicate that participating institutions in the Wabash project have increased their levels of effectiveness as witnessed through successful and high-performing accreditation reviews.

Banta, Jones, and Black (2009) present an array of efforts underway at community colleges to establish effective assessment programs on their campuses, all of which incorporate some element designed to increase greater faculty participation. For example, St. Louis Community College (SLCC) developed an institution-wide mission-based assessment model wherein learning outcomes assessment is embedded in all institutional policy documents, marketing and recruiting materials, and all curricular planning documents and activities. This initiative also involves 11 committees and over 100 faculty members who collect, analyze, interpret, and use data to assess student learning and thereby institutional effectiveness. Another example includes Oakton Community College in Des Plaines, Illinois, wherein administrators and faculty began with a series of audits for curricular improvement purposes and quite unexpectedly found themselves gathering data related to student assessment. Project leaders were stymied by the lack of systematic ways to compile baseline information about how and what students were learning, and thus developed a cross-campus interview system to determine what

data were being collected, where they were stored, and how they were used. Team leaders adopted a one-to-one interview process that created an "information highway" (p. 323) that not only established a sustainable data collection and use system, but built relationships and opened communication about learning outcomes assessment among staff, faculty, students, and administration, ultimately improving performance indicators for accreditation.

Further models of exemplary practice in assessment within community colleges and Associate of Arts degree granting institutions include: (1) individualized student assessment programs wherein faculty track and report individual student achievement on a range of outcomes and then aggregate data to formulate appropriate benchmarks; (2) faculty and student services/advising teams to create continuity for students across their programs of study, and (3) faculty grant programs that allow faculty and departments to apply and receive funding to develop models for assessing students' attainment of specific learning outcomes. Initiatives such as these provide essential support and training for institutions and faculty regarding how to collect and use assessment data to improve their courses, ultimately improving teaching and learning activities. It is evident from these accounts that if the principles of faculty ownership, empowerment, and support are employed, faculty leadership in assessment begins to align with calls for accountability.

Implications of Faculty Engagement for Teaching and Learning Practice

Chickering and Gamson's (1987) highly influential work, *Seven Principles for Good Practice in Undergraduate Education,* established a set of guidelines for faculty, administrators, students, and student development staff in higher education for the sole purpose of improving teaching and learning practice. This set of guidelines provided the

impetus and foundation for AAHE's (1992) nine principles for good practice in assessing student learning, alongside Banta, Lund, Black, and Oblander's (1996) extension of those principles and Banta, Jones, and Black's (2009) application of these principles into effective practice. Grounded in effective practice in undergraduate education, the seven principles address numerous conditions necessary for creating and sustaining successful relationships between faculty and students with respect to teaching and learning. While each principle can aptly be applied to the construct of faculty engagement with assessment, Principle 4, *Gives Prompt Feedback*, explicitly demonstrates the necessity of the relationship between faculty and assessment to teaching and learning practices:

> Knowing what you know and don't know focuses learning. Students need appropriate feedback on performance to benefit from courses. When getting started, students need help in assessing existing knowledge and competence. In classes, students need frequent opportunities to perform and receive suggestions for improvement. At various points during college, and at the end, students need chances to reflect on what they have learned, what they still need to know, and how to assess themselves. (p. 4)

Shulman (2007) posits that assessment must provide meaningful information at the teaching and learning levels first and foremost in order for faculty to make the leap to how assessment is related to the larger curriculum and the broader educational environment. Huba and Freed (2000) contend that effective assessment has the ability to transform teaching and learning practices when inspired by learner-centered practices; e.g., faculty themselves are considered learners, and are rewarded and recognized for participating in educational opportunities. Huba and Freed extend Barr and Tagg's (1995) highly influential proposition that shifting to a learner-centered environment creates a culture dedicated to increasing learning and enhancing teaching, bypassing a culture committed to measuring learning and evaluating teaching. This model positions

assessment at the forefront of learner-centered strategies, claiming that cultural shift toward improvement will ensue if faculty are also learning.

Teaching practice.

Nummedal (1994) proposes another way to view assessment other than just measurement or testing is through its use as a teaching tool or instructional innovation. For example, the "muddiest point" feedback exercise is used in the learning environment as a means to gather information about student progress or understanding. An instructor will ask students for feedback on the clarity of specific material, students provide that feedback, and the instructor adjusts accordingly or continues with the activity. Shavelson (2010) emphasizes that such strategies reinforce students' metacognitive processes of monitoring and assessing their own learning which, in turn, aids the instructor in adjusting or gauging their effectiveness in the teaching practice. Rather than relying on end-of-course evaluations, faculty are engaged with assessment that informs their daily practice and aids in building experience with aligning assignments, activities, and outcomes with assessment strategies. Angelo (1999) claims it is precisely through this process of classroom assessment that students become partners in the teaching and learning process, and the means by which faculty begin to see the links between assessment and the broader educational process.

This view of assessment as more than testing and a viable means to inform the educational process in a holistic manner is supported by scholars of formative assessment (Stiggins, 2002; Black, Harrison, Lee, Marshall, & Wiliam, 2009; Maki, 2004; Smith & Barclay, 2010) which holds that classroom assessment is not *in-class* assessment, which are the usual summative assignments, quizzes, exams, or papers. Classroom assessment

takes the form of inquiry, discussion, debate, and pulse-taking, designed as interventions to determine whether or not students are indeed learning for long-term retention and application, not just for achieving a short-term standard or outcome. This view further maintains that classroom assessment extends beyond the learning environment into the infrastructure of the institution and is related to all operations and functions therein, which directly support and enhance the teaching process.

Angelo (2002) provides a straightforward account of the importance of learning outcomes assessment to the practice of teaching by claiming that a primary reason many assessment efforts fail or underperform is because they are implemented without a deep understanding of how faculty themselves learn and develop, reflecting a need within the academy to gain a fuller perspective of faculty expectations, motivations, and learning needs to ensure assessment programs are built in a sustainable fashion. While assessment, be it classroom, program, or institutional activity, may be couched in external mandates or accountability measures, deepening faculty understanding and enrichment of the links between assessment and learning deepens investment and commitment to the teaching process and its outcomes (Shulman, 2007).

Skolits and Graybeal (2007) conclude from their study of 713 faculty at the University of Alabama that the benefits of faculty participation in any innovative activity include "greater personal investment by faculty in their work, greater organizational commitment, more creative communication among faculty, and greater teaching and learning" (p. 320). Driscoll and Wood's (2004) experience at CSUMB reflects an assessment process that goes beyond typical practice that demands participation. By building a process grounded in teaching and learning, assessment has become of

educational value to faculty, whose definition of assessment as pedagogy is cemented in its ability to capture the interest and passion most faculty have for teaching. Effective faculty engagement with learning outcomes assessment is witnessed through changes in faculty behavior and attitudes toward their teaching practices because they "reimagined in generative ways their own identities, relationships, and roles" (p. 15).

Student learning practice.

Keeling, Wall, Underhile, & Dungy (2008) describe effective learning outcomes assessment as a multi-stage, multi-dimensional process that serves as a vehicle to bring clarity and balance to the learning process, and is "integral to, perhaps even synonymous with, learning" (p. 6). Chickering and Gamson's (1987) landmark account of good practices in undergraduate education declares that no feedback can occur without assessment, and assessment without timely feedback contributes little to learning. Feedback is intimately linked to learning when provided in an instructional method such as dialogue, projects, group work, peer review, and/or progress reports. These strategies reflect the need for faculty to know and be able to apply various assessment techniques that impact student learning, which leads to faculty confidence that their teaching methods are producing effectual results. The successful assessment program begins with faculty members and students in the learning environment and from there, is extended to disciplinary, department, or program outcomes, closing the student learning loop (Nummedal, 1994) by giving both faculty and students vital information by which to make adjustments for continued learning and improvement.

While administrators would greatly appreciate a single measure that would present a clear and simple picture of the learning process at their institutions, most faculty

understand that summative competency measures; e.g., the Collegiate Learning Assessment (CLA), the Measure of Academic Proficiency and Progress (MAPP), and the Collegiate Assessment of Academic Proficiency (CAAP), are not an integral part of regular classroom or learning environment practice (Smith & Barclay, 2010). In fact, after a call from institutions for good practices in assessment, Banta, Jones, and Black (2009) compiled 146 profiles that revealed "standardized test scores are not being reported as a single resource for evidence of student learning" (p. ix).

Shulman (2007) reflects that although higher education is better off with these new tools than without them, they are "designed to interfere minimally with instruction" (p. 3) and to be general enough to use and apply broadly. Shulman further asserts that the great promise of assessment is its deployment *in the service* of instruction and in its capacity to inform the processes of teaching as to best advance the quality of learning. The challenge for faculty who wish to improve teaching is to employ assessment *in the service* of student success, which suggests that students play a key part in an effective assessment process as well. Hutchings (2010) suggests, "bringing students more actively into the process of assessment may well be the most powerful route to greater faculty engagement" (p. 16) due to advanced learner-centered frameworks that allow learners to monitor and direct their own development and achievement.

Students provide essential data to faculty about what is working and what isn't, which can be translated into changes needed in individual courses, the curriculum, integrated programs, and/or educational practices across the institution. Banta, Jones, and Black (2009) indicate that faculty who involve students in the design and delivery of learning activities and the curriculum become the most knowledgeable about goals for

student learning; subsequently, both students and faculty have a shared ownership of the learning process and must play critical leadership roles in assessing the outcomes of these activities at the campus level and within colleges, schools, divisions, and departments.

Conclusion

Institutions must be committed to the process of learning outcomes assessment in all facets of the organization in order to affect change and/or demonstrate effectiveness. If assessment is embedded in the policies, workflow, and expectations of daily work, a natural flow of evidence of accountability will emerge, allowing faculty to continue focusing on teaching and learning and allowing non-academic leaders the ability to demonstrate effectiveness, all for the advancement of undergraduate education (Ewell, 2002). Faculty involvement, participation, or engagement in assessment at all levels within an institution is critical to the success of any initiative or campus-wide effort to adopt and transform existing practices. The challenge of faculty resistance to engage fully or deeply with assessment extends beyond the classroom into program and institutional assessment processes; therefore, institutions must find more efficient and sustainable ways to entice faculty to engage at the broader level if effective engagement, rather than coerced engagement, is the ultimate goal.

As a result of the literature review, it is apparent that 12 institutional conditions emerged as factors that elicit faculty engagement with assessment in a given postsecondary institution. This study is designed to examine these conditions within a public, two-year college system. To summarize, the 12 conditions include: Faculty-related: (1) values and beliefs, (2) faculty development, (3) experience with assessment, (4) collaborative processes, (5) peer and/or discipline support, and (6) resources and time;

Institution-related: (1) embedded assessment, (2) student learning precedes accountability, (3) administrative and leadership support, (4) student involvement, (5) rewards and incentives, and (6) data management and use. Further, 5 Effectiveness indicators emerged from the review as outcomes that will result if the 12 conditions for faculty engagement are in place and functioning at a given institution: (1) greater faculty satisfaction, (2) improved teaching, (3) improved student learning, (4) learner-centered culture, and (5) increased transparency and accountability.

Further, this review suggests that these institutional conditions are directly linked to the exemplary practices noted earlier, and reflect collective assessment practices that will likely elicit effective faculty engagement with learning outcomes assessment. Additionally, if this collection of conditions is in place and functioning, faculty engagement with assessment will also likely increase, ultimately establishing the necessary environment wherein the 5 effectiveness indicators will result. The three EFEA model constructs presented earlier, Perceived Levels of Functioning, Perceived Levels of Influence, and Perceived Levels of Effectiveness, represent the assembly of the 12 conditions and the 5 outcomes indicators, and serve as observed variables in the Methods section of this study. These constructs provide a basis by which to answer the research questions concerning faculty and academic leaders' perceptions about whether or not the 12 conditions are present and functioning at their institution, if the 12 conditions increase faculty engagement with learning outcomes assessment, and whether or not the 5 outcomes indicators are established as a result of the 12 conditions.

Finally, as most research examined in this review reflects anecdotal perspectives in the form of opinion, review, observation, or practice-based experience, areas for

further study include further empirical studies (quantitative or qualitative) concentrated on examining the adoption of one or more inputs or environmental conditions described here; gauging faculty perceptions and beliefs concerning their own levels of engagement and effectiveness; and the impacts of specific assessment methods on student learning. Considering the SoA body of knowledge is still in its infancy, and faculty engagement with assessment is a relatively new phenomenon to investigate, this review only located ten empirical studies (Blaich & Wise, 2011; Peterson & Augustine, 2000; Haywood, Shaw, Nelson-Laird, & Cole, 2011; IUCPR, 2010; Kinzie, 2010; Kuh & Ikenberry, 2009; Peterson & Einarson, 2001; Skolits & Graybeal, 2007; Umbach & Wawrzynski, 2005; Welsh & Metcalf, 2003), and two dissertations (Ebersole, 2009; Emil, 2011) conducted since 1990, indicating there is still much work to do in this area.

Additionally, factors such as institutional type, faculty type, discipline, and demographic factors; e.g., gender or race/ethnicity, were mentioned as relevant or interesting in four studies (Peterson & Augustine, 2000; Haywood, Shaw, Nelson-Laird, & Cole, 2011; IUCPR, 2010; Kuh & Ikenberry, 2009), but did not emerge as significant predictors of faculty engagement in or satisfaction with assessment efforts. Undergraduate faculty input and voice (beyond assessment scholars and practitioners whose primary responsibilities include specific assessment-related functions) are clearly needed in order to build and secure assessment practices that enhance student learning and lead to achieving the outputs identified.

Chapter Three: Method

This study was designed to explore faculty and academic leaders' perceptions of effective faculty engagement practices with learning outcomes assessment in public, two-year institutions within the state of Colorado, and to discern what these practices may mean for achieving overall faculty engagement and institutional assessment goals. This study specifically sought to determine if faculty perceptions about conditions that presumably elicit greater engagement with learning outcomes assessment within the Colorado Community College System (CCCS) aligned with academic leaders' perceptions, to test a new measure of effective faculty engagement with learning outcomes assessment, to illuminate faculty perceptions about their own practices and the results of those practices in learning outcomes assessment, and to establish a venue for faculty representation in the Scholarship of Assessment (SoA) literature.

These objectives were accomplished by developing and testing a new measure designed to: (1) describe CCCS faculty and academic leaders' perceptions on three newly established constructs comprising 29 variables representing 12 institutional conditions and 5 effectiveness indicators; (2) examine the relationships between the three constructs by academic status; (3) examine the differences between these perceptions through scores on measures created from items that reflected the extent to which the 12 conditions were present and functioning, the extent to which the 12 conditions influenced greater faculty engagement, and the extent to which the 5 indicators of effectiveness were established a

result of faculty engagement with learning outcomes assessment; and (4) solicit faculty perceptions about their own levels of engagement and subsequent reasons for engaging with learning outcomes assessment.

The research questions in this study were:

1. What are CCCS faculty and academic leaders' perceptions about institutional conditions that presumably elicit effective faculty engagement with assessment as represented by the following constructs :
    a. Perceived Levels of Functioning?
    b. Perceived Levels of Influence?
    c. Perceived Levels of Effectiveness?
2. What relationships, if any, exist between and among the EFEA constructs with respect to academic status (faculty compared to academic leaders)? Do relationships among EFEA constructs differ for faculty compared to academic leaders? Further, is there a statistically significant difference in faculty and academic leader views about these constructs?
3. Do the two variables Functioning and Influence predict the outcome variable Effectiveness for the entire sample, for academic leaders and for faculty? Is prediction significantly different for those two groups?
4. What are faculty perceptions of their own engagement with learning outcomes assessment? Specifically,
    a. In what learning outcomes assessment practices do faculty engage?
    b. Why do faculty engage with these practices?
    c. How do faculty know student learning has occurred?

d. What kind of data inform changes faculty make to their teaching practices?

Methodology

Creswell (2003) claims that establishing a lucid understanding of attitudinal and/or behavioral constructs can be enhanced by quantifying these constructs into measurable variables. Quantitative measures were therefore developed to gauge if differences existed between faculty perspectives and academic leaders' perspectives regarding the conditions necessary to elicit effective faculty engagement with assessment; to discern what, if any, relationships existed between the three constructs; and to develop a more transparent account of faculty attitudes and behaviors regarding their own levels of engagement with learning outcomes assessment. Research questions rather than hypotheses were used in this study as the constructs, variables, and instrument/measure had not yet been empirically tested, and there was little theory from which to form appropriate hypotheses. Further, the research questions posed were considered complex or multifactor difference questions (Gliner & Morgan, 2000) as there initially appeared to be several scales, and thereby several potential independent and dependent variables that had also not been empirically tested.

Research Design

Gliner and Morgan (2000) describe the "general purpose of all research studies, except those that we call (purely) descriptive, is to look for relationships between variables" (p. 62). The purpose of this study aligned with Gliner and Morgan's description of the nonexperimental approach, which exhibits an "attribute independent variable" (p. 62). An attribute variable is an independent variable that is not considered a

treatment, is not controlled by the researcher, and is not used to imply causation. The comparative research approach, also known as causal-comparative, serves to find and relate variables, tests for differences between groups (faculty and academic leaders), and allows for the examination of presumed effects of independent variables on dependent variables. This study, therefore, was considered nonexperimental and comparative, as manipulation of an independent variable to determine effects on a dependent variable or causation was not performed.

Data Collection Method

In order to capture the most accurate depiction of faculty and academic leaders' perceptions of effective engagement in learning outcomes assessment at public, two-year institutions, faculty and academic leaders who were deemed responsible for teaching, learning, and assessment were directly queried (Banta, Griffin, Flateby, & Kahn, 2009). Survey design was selected as it was deemed the most economical and efficient way to capture the responses of a large population, and to facilitate a rapid turnaround time (Creswell, 2003). Creswell states that, "survey design provides a quantitative or numeric description of trends, attitudes, or opinions of a population by studying a sample of that population" (p. 153). A survey design also allowed the researcher to query the entire population of faculty who teach at public two-year institutions in Colorado; specifically, faculty at the community colleges and junior colleges within the CCCS, and to query a large section of academic leaders within the same system.

Additionally, the researcher had indirect yet reliable access to faculty and academic leaders within the CCCS system, which comprised approximately 5,351 part- and full-time faculty members and 97 academic leaders who met the criteria established

for the field study (G. Anderson, VP Student and Academic Affairs/Provost, CCCS, personal communication, January 24, 2012). As participants were required by their job responsibilities to possess Internet access and a CCCS email address, they were considered computer-literate, thus their levels of experience with an electronic questionnaire was likely be high (Dillman, 2007). Therefore, a web-based (Internet), self-administered questionnaire was considered the most efficient and appropriate data collection approach (Dillman, 2007; Fowler, 2009; Sue & Ritter, 2007).

Babbie (1990) further describes the objectives of survey research as descriptive, explanatory, or exploratory. This study was both exploratory and explanatory in nature; that is, designed to examine and explain observations made from the literature, and to identify and explain differences between faculty and academic leaders' perceptions of effective engagement with learning outcomes assessment and faculty perceptions of their own engagement practices. The study was also identified as cross-sectional with data collected at one point in time to describe the population of faculty and academic leaders within the CCCS system.

Pilot Study

A pilot test for this study was conducted to (1) estimate reliability, validity, and item functioning for the newly created Effective Faculty Engagement with Assessment (EFEA) scale and subscales to be used in the field study, (2) initially test the relationships (if any) between and among three proposed EFEA model constructs and scaled items, and (3) obtain appropriate response choices for four open-ended qualitative items (Babbie, 1990; Creswell, 2003; DeVellis, 2003; Fowler, 2009*).* The pilot test also allowed the researcher to gather information about the participants' ability to comprehend the

instructions in the cover letter, the questionnaire items, the terms used, the sequence of questions and the flow of statements, and the format, including the font and layout. Modifications to the scale or subscales, format, and/or overall instrument were made prior to administration of the field study. Results and major findings of the pilot test are presented in Chapter 4. Discussion of the pilot results is presented in Chapter 5.

Pilot population.

The selected sample of participants for the pilot study, defined as a purposive sample due to targeted selection methods (Gliner & Morgan, 2000), included a total of 115 faculty members from Colorado Mountain College (CMC) who taught primarily at one of two campuses during Summer semester 2012. Six academic leaders, described as Deans of Instruction, Instructional Chairs, Program Directors, and Division Directors, at both campuses were also asked to participate in the study. These faculty, academic leaders, and institution were selected because they are legally exempt from the Colorado Community College System (CCCS), but represent a similar demographic to the faculty and academic leaders within the CCCS.

CMC faculty and academic leaders were considered representative of CCCS faculty and academic leaders and thus selected for the pilot study due to the following characteristics: (1) employment strata; e.g., position titles and rankings, job duties and qualifications, salary ranges, and performance expectations were highly analogous between CMC and CCCS faculty and academic leader positions (*CCCS Sourcebook*, 2010; CMC website, 2012); (2) demographic characteristics; e.g., gender and race/ethnicity by position type reflected relatively similar total percentages for CMC and CCCS faculty and academic leaders in Fall semester 2011 (NCES, 2012) (see Appendix

D); (3) CMC accreditation was observed under the same accrediting body (Higher Learning Commission/North Central Association), reflecting adherence to similar criteria for instructional quality standards; and (4) CMC was a member of the CCCS program and course approval system, reflecting adherence to congruent transfer and student learning standards.

Pilot procedure.

The researcher contacted the Chief Executive Officers (CEO) at both CMC campuses to obtain approval to administer the pilot instrument to faculty and academic leaders. Two emails containing pilot instrument description, instructions, informed consent protocol, operational definitions of each group, and a link to the survey were sent to each campus CEO on July 25, 2012 (see Appendix E; Appendix F). Each email contained a subject heading identifying the appropriate group in which to send the email; e.g., faculty or academic leaders. CEO's were asked to add a sentence or two in their own words advocating participation, and then to forward to both groups. Both CEO's administered the pilot instruments electronically via email directly to all faculty members who taught at their campuses, and all academic leaders who worked at their campuses. Rather than sampling faculty who only taught in the summer semester, all faculty members were included as to cast a wider net for participation and prevent the CEO's (or their staff) from having to sort existing email distribution lists.

Electronic survey methods scholars (Dillman, 2007; Fowler, 2009; Hamilton, 2004; Sue & Ritter, 2007) indicate that an open response period for email and web-based or Internet surveys generally entails two to six weeks, depending on the size of the sample and the length of the survey. Pilot materials were delivered to 115 faculty

members and six academic leaders for a total of 121 individuals. An open response period of two weeks was deemed sufficient due to the small population and moderate number of items on the pilot instrument.

Pilot response rates.

A response rate was calculated to determine the percentage of participants who responded to the pilot survey. Sue and Ritter (2007) and Fowler (2009) present summaries of literature related to acceptable response rates for mail, email, and web-based surveys. Although participants were contacted via email, this survey was considered a web-based or Internet survey, as it was developed using survey host *SurveyMonkey* and a link to the survey was provided in the email. For web-based surveys, Hamilton (2004) claims 27.4% is an acceptable response rate, while Kwak and Radler (2002) state 32.5% is acceptable. According to Dillman (2007), the acceptable range for email surveys is quite large, 4% to 76%; thus, the literature on web-based surveys was used as an appropriate gauge. Dillman also claims a baseline response rate has not been established to date for online or Internet-based surveys, thus, the pilot study used a baseline response rate of 25% as acceptable. The surveys were sent to 74 faculty and two academic leaders at Campus 1, and 41 faculty and four academic leaders at Campus 2 by the CEO's. A wave analysis (Fowler, 2009) was conducted wherein response rates were monitored during the open submission period and rates compared toward the end of the submission period to determine if response rates had changed. Total population and group response rates were calculated by campus using the following formula (Johnson & Christenson, 2008):

$$Number\ of\ \frac{respondents}{N}\ x\ 100 = Response\ rate$$

Pilot constructs and variables.

The constructs and variables developed in this study were derived from the literature review using the Scholarship of Assessment (SoA) body of knowledge. As described earlier, three constructs emerged from the literature that classified 29 scaled variables representing organizational conditions that presumably elicit or are established as a result of faculty engagement with learning outcomes assessment: (1) Perceived Levels of Functioning, (2) Perceived Levels of Influence, and (3) Perceived Levels of Effectiveness. The three categories that bound the scaled variables were initially labeled as Constructs 1, 2, and 3, respectively, and were operationally defined (see Table 2).

Table 2
Operational Definitions of EFEA Constructs

Construct	Operational Definition
Construct 1: Perceived Levels of Functioning	The extent to which faculty and academic leaders perceive the 12 institutional conditions are present and functioning at their institution.
Construct 2: Perceived Levels of Influence	The extent to which faculty and academic leaders perceive the 12 institutional conditions increase or positively influence greater faculty engagement with learning outcomes assessment.
Construct 3: Perceived Levels of Effectiveness	The extent to which faculty and academic leaders perceive the 5 indicators of effectiveness are established as a result of faculty engagement with assessment.

The number of scaled variables increased from 29 to 31 after the results of the cognitive interviews were evaluated, as items F8 and I20 were split into two questions for clarity and understanding. Two items were added to both surveys (F9 & I21), increasing the number of scaled variables from 12 to 13 within the Perceived Levels of Functioning

and the Perceived Levels of Influence constructs. 5 categories of variables were introduced in the pilot study: (1) Demographic: 5 categorical-unordered and 2 continuous variables used to gather descriptive information about the population and report frequencies or trends across various population characteristics; (2) within the Perceived Levels of Functioning construct: 13 ordinal variables used to identify faculty and academic leaders' perceptions about the extent to which the 12 institutional conditions were present and functioning at their institution; (3) within the Perceived Levels of Influence construct: 13 variables used to identify faculty and academic leaders' perceptions about the extent to which the 12 institutional conditions cultivated or influenced greater faculty engagement with learning outcomes assessment; (4) within the Perceived Levels of Effectiveness construct: 5 variables used to identify faculty and academic leaders' perceptions about the extent to which the 5 indicators of effectiveness were established as a result of faculty engagement with learning outcomes assessment; and (5) Faculty Engagement Practices: 4 qualitative, open-ended variables used to identify faculty practices and reasoning behaviors when engaging in learning outcomes assessment.

For data analysis purposes, the four Engagement variables that were initially qualitative in nature were transformed into categorical, nominal level variables with a closed-ended, 'Select all that Apply' response format after pilot data were received and categorized (Sue & Ritter, 2007). The term 'condition' was converted to the term 'indicator' to reflect the 31 items that produced scores and thus measures (DeVellis, 2003). The theoretical term 'construct' was converted into independent variable 1 (IV1:

FUNCTION), independent variable 2 (IV2: INFLUENCE), and dependent variable 1 (DV1: EFFECT).

Lastly, estimates for convergent validity required creating new scaled variables for the aggregate sum scores on the *Effective Faculty Engagement with Assessment* (EFEA) and *Institutional Support for Student Assessment* (ISSA) instruments (Peterson, Augustine, Einarson, & Vaughan, 1999). This process is described in detail in the Construct Validity section under Pilot Results in Chapter 4, but was important to note in this section, as the number of scaled variables in the pilot study increased again by eight variables. These eight variables comprised the total scale score for the EFEA and ISSA scales, and three EFEA and ISSA subscales. Cognitive interviews were conducted with the original items and variables, and content expert and reliability and validity analyses were conducted using modified items and variables.

Pilot instrumentation.

The pilot instrument was entitled *Faculty Assessment with Learning Outcomes Assessment Pilot Survey*, with the terms 'Faculty' and 'Academic Leader' added to reflect the appropriate target audience in each survey. The *Faculty Survey of Student Engagement* (FSSE) supplemental survey (Haywood, Shaw, Nelson-Laird, & Cole, 2011) and the ISSA survey served as foundational measures from which items were developed, although modifications to the existing instruments were made with permission to accurately answer the research questions posed in this study (see Appendix G). These changes initially included: (1) specifying terms; e.g., learning outcomes assessment rather than the general term assessment, (2) providing a thorough definition of learning outcomes assessment, (3) adding items that allow faculty to identify their practices and

perceptions of those practices, (4) revising the rating scale in order to clarify the existing response categories, and (5) adding a companion survey to solicit academic leaders' perceptions of faculty engagement with assessment at each institution.

Pilot rating scale.

The rating scale was designed to indicate the varying degree or extent to which the participants agreed with or endorsed the statement (DeVellis, 2003). In this pilot study, an even-numbered summated rating scale was selected to measure categorical and continuous variable items, as it provided more equivalent distance between responses than a traditional 5-point Likert scale, possibly negating the sometimes adverse effects of a neutral response (DeVellis, 2003). The response options were worded in order to have assumed equal intervals with respect to agreement or disagreement. 'Do Not Know' and 'Not Applicable' response choices were not included as the intent was to force participants into choosing a response closest to their true opinion.

The rating scale used in the pilot study was as follows:

1 = Not at All (Reflects a zero level or never occurs)

2 = Very Little (Reflects a small amount or minimal level of occurrence)

3 = Moderate (Reflects a modest amount or standard level of occurrence)

4 = Very Much (Reflects a significant amount or maximum level of occurrence)

This scale was adapted with permission from the FSSE supplemental survey rating scale (Haywood, Shaw, Nelson-Laird, & Cole, 2011).

Pilot items.

All items in this pilot test were either modified with permission from the FSSE supplemental survey instrument (Haywood, Shaw, Nelson-Laird, & Cole, 2011) or created by the researcher. Items were designed to measure faculty and academic leaders' perceptions of the proposed independent variables and dependent variable, to identify relationships (if any) between scaled variables, and to illuminate faculty engagement practices. Both faculty and academic leaders were asked to provide demographic information for comparison and descriptive reporting purposes. Both faculty and academic leaders were asked to rate the extent to which they perceived the 12 institutional indicators to elicit faculty engagement with learning outcomes assessment were present and functioning at their institution (13 items on IV1: FUNCTION). Both faculty and academic leaders were asked to rate the extent to which they perceived the 12 institutional indicators increased faculty engagement with assessment (13 items on IV2: INFLUENCE). Both faculty and academic leaders were then asked to rate the extent to which they perceived the 5 effectiveness indicators were established as a result of faculty engagement in learning outcomes assessment at their institution (5 items on DV1: EFFECT).

Finally, faculty alone were asked an additional set of questions related to their perceptions of their own practices in order to respond to the alleged problem of a lack of transparency of engagement practices. The pilot instrument contained a total of 42 EFEA items for faculty (7 closed-ended demographic, 31 scaled, and 4 open-ended response choice items), and 38 EFEA items for academic leaders (7 closed-ended demographic,

and 31 scaled response choice items). A total of 27 ISSA items (Peterson & Augustine, 2000) were included on both instruments for both groups to estimate construct validity.

The response format used to collect participant responses in the pilot survey included the following: (1) Demographic variables: a categorical response format for items 1, 2, 3, 6, and 7 (one choice format), and a write-in response format for items 4 and 5 to provide respondents with the ability to identify the precise number of years of experience they possessed in assessment along with their precise chronological age; (2) IV1: FUNCTION, Perceived Levels of Functioning, and IV2: INFLUENCE, Perceived Levels of Influence: 26 scaled items measured using a 4-point summated rating scale; (3) DV1: EFFECT, Perceived Levels of Effectiveness: 5 scaled items measured using a 4-point summated rating scale; and (4) Perceived Levels of Engagement: an open-ended response format used to gather faculty perspectives concerning the practices in which they engaged in learning outcomes assessment (LOA) practices and their rationale for doing so.

Finally, the four Engagement items were reduced to categorical 'Select all that Apply' items for the field survey, giving participants options from which to make selections about their practices and reasoning behind the elements that influence their decision-making and assessment practices. The 27 ISSA validation items on each survey brought the grand total of items to 69 items for faculty and 65 items for academic leaders.

Pilot reliability and validity estimates.

Reliability was defined in this study as the extent to which an experiment, test, or measuring procedure yields the same results on repeated trials and over time (Johnson & Christenson, 2008). Three methods were implemented to improve items and estimate

reliability of the pilot instrument: (1) cognitive interviews, (2) internal consistency, and (3) item analysis. To ensure that the instruments in this study measured what they were intended to measure for the given sample and context (Johnson & Christenson, 2008), validity in this study was assessed using the following methods: (1) content expert review, (2) construct validity, and (3) content analysis.

Reliability.

Cognitive interviews.

Cognitive interviews were conducted with three faculty members who taught at Colorado Mountain College (CMC) and three CMC academic leaders to explore whether or not survey respondents would interpret items as intended by the researcher. These participants were considered representative of the target groups for the field study and were administered the initial pilot instrument. A coding scheme, or formal coding system in which segments of the verbal protocol was examined and assigned coding categories in cognitive interviewing, was not adopted for use in these interviews due to a variety of limitations. Willis (2005) asserts that traditional coding schemes are of limited utility in the "applied world of question pretesting" (p. 158) wherein the focus is on the survey question, not the cognitive processes of the interviewee. In this pilot test, actual cognitive interviewee verbal comments were preferable to codes, as coding would have involved data reduction of original comments and contained less information, rendering this method as fairly limited when used in survey design (Bolton, 1993).

Participants.

One Asian/Pacific Islander female part-time faculty member, one Hispanic American female part-time faculty member, one White male full-time faculty member,

one White male academic leader, and two White female academic comprised the cognitive interview panel (see Table 3). The interviewees were selected by the researcher with the intent to gather perspectives from diverse groups (see Appendix H). The interviewees were also identifiable to the researcher, but granted their informed consent to participate if their identity remained confidential (see Appendix I). The signed consent forms were collected and stored in the researcher's personal file system.

Table 3
Cognitive Interviews – Sample Size and Percentage of Sample by Demographic Variables

Characteristic	*n*	%	Range
Position type			
Dean of Instruction	1	16.7	
Division Director	0	0	
Instructional Chair	1	16.7	
Program Director	1	16.7	
Primary CMC location			
Leadville	5	83.3	
Summit County	1	16.7	
Current education level			
Licensure or specialty degree	0	0	
Associate Degree	0	0	
Bachelor Degree	1	16.7	
Master Degree	3	50	
Doctoral Degree	2	33.3	
Years of experience in LOA			5-30
Present age			41-57
Gender			
Female	4	66.7	
Male	2	33.3	
Race/ethnicity			
Am. Indian/Alaskan Native	0	0	
Asian /Pacific Islander	1	16.7	
Black/African American	0	0	
Hispanic American	1	16.7	
White/Caucasian	4	66.7	

Note. All demographic data were self-reported.

Instrument.

The original EFEA pilot instrument included 40 total items for faculty participants, and 36 total items for academic leaders. The interviewees were not asked to provide input on the 27 ISSA items (Peterson & Augustine, 2000). Interviewees were also asked about the clarity and wording of the instructions and the response categories for the rating scale. The researcher's role was to listen to determine whether or not the interviewee interpreted the questions, phrases, and terms correctly, rather than probing or questioning the interviewees' responses, as not to contaminate any responses (Ericsson & Simon, 1984). Criteria used included: (1) the item's clarity; e.g., did the question as a whole make sense, or did the question flow in a logical manner? (2) the item's conciseness and cultural orientation; e.g., were the words and/or terms used clear, lucid, and precise? (3) the item's length, order, or position within the flow of questions; e.g., did the item fit in the flow of content? (4) the item's content or inclusivity of appropriate words, terms, or concepts; e.g., is there a need for further specification of objectives?

Procedure.

A 'think-aloud' format (Ericsson & Simon, 1984; Willis, 2005), or verbal report method, was used to gather interviewees' responses, thought processes, and verbal processing streams regarding the initial set of items for each group. This format was selected due to Ericsson and Simon's claim that verbal reports provide information that reflect critical immediate responses which are relevant in determining whether survey items function as desired. Willis also suggests that results should illustrate the type of errors that respondents may make in interpretability, accuracy, or difficulty of item interpretation. Therefore, adjustments to the instructions, items, scale, or content were

made in accordance with the six pilot interviewees' comments prior to the content expert analyses. Subjective decision-making processes grounded in theoretical premises were utilized in determining whether or not a comment or suggestion was adopted including how many interviewees expressed similar views (e.g., over 50%), whether or not the suggestion altered the meaning or intent of the item, and/or if the suggestion made logical sense, affected flow order and length, affected what could be studied or research objectives, or affected burden on the participants. If discrepancies between panelist comments emerged, the researcher deferred to issues of content and meaning to determine the most appropriate course of action. DeVellis (2003) claims in such cases, the content of each item should reflect the underlying construct of interest; thus, while wording can be adjusted, meaning should not.

The researcher met with each interviewee at a location of their choosing at a time when the interview could be conducted in full (approximately 30-40 minutes). At each meeting, the researcher explained the study's purpose and provided consent forms. A hard copy of the information email that was sent to campus CEO's was also provided to interviewees for feedback. The researcher read each question aloud and recorded each participant's verbal think-aloud stream using audio recording and typing their responses simultaneously into a computer word-processing program. The researcher permitted the interviewee to read the question if they indicated they needed more clarity. How the participant constructed his or her answers, how the participant interpreted the questions and developed meaning, and any difficulties the participant had in answering the questions were also captured and recorded.

Internal consistency.

A Cronbach's coefficient alpha (α) (DeVellis, 2003) was calculated on the two proposed independent variables (13 items on IV1: FUNCTION and 13 items on IV2: INFLUENCE), and the dependent variable (5 items on DV: EFFECT) to provide an estimate of internal consistency in the pilot sample of CMC faculty and academic leaders (n = 40). Alpha informed the researcher about the degree to which the items were interrelated, and a result size lower than .70 could have indicated that items were inconsistent or did not relate well to each other, questions were written poorly, or a systematic bias was introduced by the scale itself. Alpha is also an indication of the proportion of variance in the scaled scores that is attributable to the true score, which allowed the researcher to better understand the actual variation across individuals in the phenomena that the scales measured, and the error associated with any variation in the scale scores. The overall EFEA measure and the three subscales were assessed separately.

Item analysis.

An item analysis was performed to assess the contribution of the items to the scale and to identify non-performing items using a .70 Cronbach's alpha estimate as a minimum criterion for item retention. Alongside alpha, item association reflects how items relate to each other by providing an indication of the proportion of variance in the scale scores that is attributable to the true score (DeVellis, 2003). Use of Classical Test Theory (CTT) ensured items were roughly equivalent indicators of the same underlying phenomenon that gathered strength through aggregation as a scale, increasing reliability through redundancy. CTT also allowed the comparison of each item to every other item, producing an aggregate score for each group under examination; e.g., faculty and

academic leaders. The aggregate of all scores for each item was identified in a correlation matrix produced from the item analysis, wherein decisions about retaining or removing items were made.

Examination of the item analysis results, or item statistics, included item means, item variance, and item discrimination, or item-scale correlation, that demonstrated the association between individual items and overall test performance (DeVellis, 2003). Items were assessed for inclusion in the field instrument using the following criteria: (1) item means closer to the center of the scale (not < 1.5 or > 3.5), (2) higher versus lower standard deviations or variance, (3) positive inter-item correlations, (4) higher versus lower item-scale correlations (>.30), and (5) items that maximized Cronbach's alpha for minimal scale length (DeVellis, 2003; Field, 2005). Items that demonstrated poor or low performance on any of the 5 evaluation criteria were examined across a decision matrix and considered for removal. Items were then evaluated for their contribution or relevance to the hypothetical latent constructs to determine if their removal would impact the significance of the study. Items that performed well in all 5 categories were not considered for removal and not included in the decision matrix. If the final decision included item removal, Cronbach's alpha was re-estimated to assess subsequent scale performance.

Validity.

Content expert analysis.

After modifications were made to the original items as a result of the cognitive interviews, a panel of four learning outcomes assessment experts (content experts) were contacted directly by the researcher via email and in-person, all of whom agreed to assess

the content validity of the scaled items and the open-ended qualitative items. DeVellis (2003) claims that having experts review the item pool can confirm or refute the items' clarity and conciseness, and can assess the degree to which the items assess the content they are intended to measure. DeVellis also claims that ambiguous or unclear items may reflect the presence or interference of factors extraneous to the latent variable; thus, experts were asked to point out awkward or confusing items and suggest alternative wording and/or response choices.

Participants.

The four individuals on the panel of experts were selected based on several criteria: (1) the researcher's knowledge of assessment professionals considered subject matter experts (SME) in the Colorado higher education community, (2) the content expert's primary campus locale (urban, suburban, or rural) to facilitate diversity in representativeness in the larger field study, and (3) the content expert's experience with not only learning outcomes assessment content, but also with survey methodology and/or psychometrics in order to increase the understanding of validation methods (see Appendix J). One White male, two White females, and one Black female comprised the panel. Table 4 provides a summary of content expert panel demographics.

Table 4
Content Experts – Sample Size and Percentage of Sample by Demographic Variables

Characteristic	*n*	%	Range
Position type			
Director of Assessment	1	25	
Dept. Chair/Faculty	1	25	
Instructional Chair	1	25	
Program Director	1	25	
Primary location			
Rural	1	25	
Suburban	1	25	
Urban	2	50	
Current education level			
Bachelor Degree	0	0	
Master Degree	2	50	
Doctoral Degree	2	50	
Years of experience in LOA			10-15
Present age			44-58
Gender			
Female	3	75	
Male	1	25	
Race/ethnicity			
Am. Indian/Alaskan Native	0	0	
Asian /Pacific Islander	0	0	
Black/African American	1	25	
Hispanic American	0	0	
White/Caucasian	3	75	

Panelist number 1 was the Director of Assessment for a propriety university in Colorado (rural), held a PhD in Higher Education Administration/Curriculum and Instruction, had twenty years' experience as a tenured professor, and possessed ten years of experience in learning outcomes assessment. Panelist number 2 was a full-time faculty member at a CCCS community college (suburban), held a PhD in Environmental Psychology, taught Psychology and Psychometrics for fifteen years, and possessed fifteen years of experience in learning outcomes assessment. Panelist number 3 was the Dean of Program Evaluation and Assessment at a private non-profit university in Colorado (urban), possessed an MBA, conducted training and development in learning outcomes assessment for twenty years, had 12 years of experience in institutional research and assessment, and 15 years of experience in data management and analysis in corporate industry. Panelist number 4 was a Research Analyst in institutional research at a CCCS community college (urban), held an MS in Mathematics/Statistics, taught courses as a part-time faculty member in several community colleges, and possessed 13 years of experience in institutional research, specifically in survey administration and data analysis.

Instrument.

A content review protocol was designed to include a specifications/rating matrix with instructions, and was created for content validation of individual scaled items and the overall scale (see Appendix K). The specifications matrix included the construct/proposed independent variables and dependent variables, the operational definitions of the proposed variables, the 31 scaled items, the four qualitative items for faculty, and three categories of content analysis questions with agreement or

disagreement indicated in Yes/No format. Three categories of evaluation were constructed based on Berk (1990), Grant and Davis (1997), and DeVellis's (2003) recommendations for the use of experts in content validation: (1) Terms and concepts fundamentally mean the same thing, (2) Evidence of the degree to which the item measures the content it is intended to measure, and (3) Evidence that the item covers the range of meanings in the definition.

Procedure.

Two content experts known to the researcher were contacted by email and asked to participate as an expert panelist for the pilot test and validation of the EFEA instrument. The remaining two content experts were recommended by colleagues and were also contacted initially by email to introduce the study and request an in-person interview. The researcher felt it was very important to engage in a professional interaction prior to asking for their time and assessment of the measure. Content experts were sent the protocol and analysis form via email attachment. Panelists were asked to rate their agreement or disagreement with whether or not the items reflected evidence of the operational definition, to assess item clarity, difficulty, and comprehensiveness, and to rate each item while cross-referencing the definitions.

Panelists were also asked to judge item quality and make suggestions for rewording and criteria for the open-ended questions. Johnson and Christensen (2008) state that such judgments allow researchers to gauge the degree to which the content-related evidence supports the validity of the instrument; in other words, if the majority of experts consider the items to reflect the content or operational definition, this exhibits evidence of content validity. Finally, panelists were informed they could return the form

via email or the researcher could pick it up in person. All four panelists returned the forms electronically via email, which were stored in the researcher's personal file system. Forms were sent to the content experts after the cognitive interviews were analyzed and modifications to the original items were made, thus panelists assessed content validity of the revised instrument.

Construct validity.

Construct validity was assessed using convergent validity, which refers to the extent that scores reflect the theory behind the constructs being measured and the degree to which a measure converges on external measures that it theoretically should be similar to (Johnson & Christensen, 2008; Sax, 1997). In this study, 31 scaled variables were situated within hypothetical variables IV1: FUNCTION (13 indicators), IV2: INFLUENCE (13 indicators), and DV: EFFECT (5 indicators). Thus, three similar theoretical constructs using summated rating scales were located and evaluated for their convergence to the three constructs developed in this study. Pilot participants, both faculty and academic leaders, were asked to respond to the *Institutional Support for Student Assessment* (ISSA) inventory (Peterson & Augustine, 2000) items located at the end of the EFEA survey.

New variables were created for the EFEA total scale score, the ISSA total scale score, the three EFEA subscales, and the three ISSA subscales. These scores were first transformed into standardized *z* scores to enable interpretation across the different scales (Field, 2009; Sax, 1997). Intercorrelations between the aggregate scores from the corresponding measures on the ISSA and the EFEA scores were calculated for construct validity using Pearson's *r* correlation coefficient (Field, 2005; Johnson & Christensen,

2008). A Pearson's *r* was calculated between these items to assess strength and the direction of the alignment, and to determine on which items the groups were the same and on which they differed. Measures of constructs that are strongly related to each other should result in coefficients that are ≥ .70 (Sax, 1997), although Johnson and Christensen (2008) contend that correlations between .40 to .90 reflect moderate to high association with theoretically similar measures, and DeVellis (2003) posits that "there is no cut-off that defines construct validity," as statistical significance provides stronger evidence of association (p. 54).

Content analysis.

A content analysis (Berg, 1998; Krippendorff, 2013) of the open-ended responses to the four Engagement items on the faculty version of the pilot survey was conducted using Web host *SurveyMonkey* to gather and report the most frequently reported words or terms and themes. Words or terms and themes were pre-selected for this analysis, as the objective was to identify manifest content, or elements that were physically present and countable, as opposed to latent content which includes interpretive reading of the symbolism underlying the physically present data; e.g., meaning, ideas, or characters (Krippendorff, 2013). Therefore, interpretations or inferences about respondents' word, term, or theme choices were not made. This method provided a relatively straightforward technique to gather in-depth responses from faculty concerning the assessment practices in which they engage, and to develop a list of closed-ended, quantitative, polytomous variables with a 'Select all that Apply' response format.

Berg (1998) suggests that a minimum of one match between established criteria and participant responses estimates manifest content, as the presence of the unit of

analysis (word, term, or theme) provides evidence that the unit exists in the participant's understanding of the given text under analysis. Therefore, the following steps were taken for content analysis in the pilot test: (1) criteria of selection for words or terms and themes were established *a priori* to pilot administration; (2) pilot faculty participants were asked to answer the Engagement items, writing their responses in open-ended format; (3) the software program *SurveyMonkey* was used to compile all responses into lists and sort words or terms and themes into categories as instructed by the programmer; and (4) any words or terms and themes that matched the criteria of selection were reduced to words or terms and themes appropriate for closed-ended selection purposes. Words or terms and themes that were similar in nature to the criterion of selection were also assessed for their applicability and included in the final categories. Participant responses were compiled in a matrix and compared to the *a priori* selection of criteria.

Field Study

Population.

At the administration of this study, there were 28 Public Funded, 103 Private Accredited and Religious Exempt, 340 Private Occupational, and 3 Area Technical colleges and universities in the state of Colorado (Colorado Department of Higher Education website, 2012). Of these, only the Colorado Community College System (CCCS) represented public, two-year colleges, thus the entire population, or census (Babbie, 1990), of faculty who taught in the CCCS and academic leaders who worked in the CCCS were queried. The CCCS comprised the state's largest system of higher education, serving more than 116,000 students annually (CCCS website, 2012). CCCS administered career and academic programs in the 13 state-supported community

colleges and one virtual college (CCCOnline), and administers career and technical programs in more than 160 school districts and seven other postsecondary institutions. In the 2011-2012 academic year, 1,240 full-time faculty (assistant, associate, full professors and instructors), and 4,014 part-time faculty (adjunct and contract instructors), taught in the CCCS (NCES, 2012) for a total of 5,254 faculty. Ninety-seven positions were identified by the researcher as meeting the operational definition for academic leaders in 2011-2012 (*CCCS Sourcebook*, Fall 2011) for a total of 5,351 individuals available for inquiry.

Nonprobability sampling, or census design, defined the method for selecting participants, which excluded the need for randomization and stratification of the population (Babbie, 1990). The population was selected on the basis of the researcher's knowledge and experience with the population, the accessibility of the public system and leadership team, and the population's direct applicability to the research aims. A description of CCCS faculty and academic leader populations by gender, institution, position type, and race/ethnicity is presented in Appendix L.

Procedure.

There were two units of analyses in the field study: (1) all CCCS individuals identified by the CCCS as full-time or part-time faculty and/or instructional staff, and (2) all academic leaders whose primary job duties included oversight of academic units; e.g., CCCS positions that met the operational definition in this study. Electronic survey methods scholars (Dillman, 2007; Fowler, 2009; Hamilton, 2004; Sue & Ritter, 2007) indicate that an open response period for email and web-based or internet surveys generally entails two to six weeks, depending on the size of the sample and the length of

the survey. The larger the sample and the longer the survey, the longer the survey period should remain open. As the field study included 5,351 total individuals, and 42 items for faculty and 38 items for academic leaders, an open submission period of four weeks was deemed sufficient.

Dillman (2007) offers 5 primary elements that generally increase response rates in an electronic survey: (1) respondent-friendly language, (2) multiple contacts, (3) appropriate timing, (4) personalization, and (5) incentives. The researcher utilized clear, common language and a user-friendly tone (welcome, thank you, and exclamation points where appropriate) to elicit a warm, pleasant approach to the survey. Overall, 5 contacts were made to participants in an attempt to balance appropriate contact and saturation. The survey was administered mid-point during the Fall semester in consideration of the beginning- and end-of-semester workload demands, which may have impacted the decision to participate. Personalization was established by reaching the groups through their campus President, and an incentive worth $200 was included (2013 *Kindle Fire HD* tablet). The survey was developed and administered using Webhost *SurveyMonkey* design and data collection system. Additionally, the Provost agreed to waive the CCCS Institutional Review Board (IRB) requirements, accepting the University of Denver's IRB approval process.

Data collection.

The researcher queried the participants indirectly through CCCS email via the CCCS Provost's office. The CCCS Provost agreed to send an introductory email to all institution Presidents endorsing the study and requesting their assistance in electronically forwarding a subsequent email from the researcher that included instrument description,

survey instructions, definitions of faculty and academic leaders, and a link to the survey (see Appendix M). Three follow-up reminder emails were submitted to the Presidents every week for three weeks, who sent them to participants (see Appendix N). A reminder email was also sent from the CCCS Provost directly to the participant groups after Week 3 to advocate participation. Response rates during the fourth week indicated lower-than-anticipated rates for faculty for certain demographic groups, thus the survey was extended one additional week. A final email request was sent to the campus Presidents by the researcher, while the CCCS Provost sent a reminder directly to participants via email. In an effort to ensure anonymity of participants, participant emails were not made available to the researcher. Once the survey period closed, the researcher exported data from *SurveyMonkey* to SPSS 20.0 and MS Excel for analyses.

Variables.

The demographic variables identified in the pilot test were adopted in the field study: (1) Position Type, (2) Institution, (3) Education Level, (4) Years of Experience, (5) Age, (6) Gender, and (7) Race/Ethnicity. The proposed independent variables and dependent variable identified in the pilot test were also adopted in the field study: (1) Perceived Levels of Functioning (IV1: FUNCTION), (2) Perceived Levels of Influence (IV2: INFLUENCE), and (3) Perceived Levels of Effectiveness (DV: EFFECT). The 12 institutional conditions situated within the two independent variables in the EFEA model were utilized in the field study: (1) Faculty Values/Beliefs, (2) Faculty Development, (3) Experience w/Assessment, (4) Collaborative Processes, (5) Discipline/Peer Support, (6) Resources/Time, (7) Embedded Assessment, (8) Student Learning precedes

Accountability, (9) Administrative/Leadership Support, (10) Student Involvement, (11) Rewards/Incentives, and (12) Data Management/Use.

The 5 Effectiveness indicators in the EFEA model were also used in the field study: (1) Increased Faculty Satisfaction, (2) Improved Teaching, (3) Increased Student Learning, (4) Learner-centered Culture, and (5) Increased Accountability/Transparency. Finally, the four Faculty Levels of Engagement variables were utilized: (1) Examples of Practice, (2) Reasons for Engaging, (3) Evidence of Learning, and (4) How Data are Used. The variables groupings reflected hypothesized construct patterns prior to statistical exploration.

Instrumentation.

As described in the Pilot Study results, the two scales used to collect data in the pilot test were combined into one scale prior to field administration for ease of use and delivery by the CCCS campus Presidents. The final combined instrument was entitled *CCCS Faculty Engagement with Learning Outcomes Assessment Survey*.

Rating scales.

The summative rating scale used in the pilot test remained intact as comments from the cognitive interviewees and the panel of experts or responses from the pilot instruments did not reflect issues of concern:

1 = Not at All (Reflects a zero level or never occurs)

2 = Very Little (Reflects a small amount or minimal level of occurrence)

3 = Moderate (Reflects a modest amount or standard level of occurrence)

4 = Very Much (Reflects a significant amount or maximum level of occurrence)

Items.

As reflected in the pilot test results, item text or wording changed slightly as a result of the cognitive interviews, the expert analysis, and the test administration. Two items in the FUNCTION and INFLUENCE scales were split, adding two additional items to the total EFEA scale for a total of 31 items in the field instrument. These actions were intended to refine questions and maintain the integrity of the questions behind the item, not to change the character or meaning of the items. Additionally, the set of 31 EFEA scale items were highly intercorrelated in the pilot test, and negative correlations did not surface in the item analysis correlation matrix, thus all items used in the pilot test were adopted in the field study with slight modifications. Finally, the scaled items demonstrated normal distributions for the EFEA total scale and the three subscales (see Appendix O).

Response rates.

The EFEA instrument was administered to the entire population of faculty and academic leaders within the CCCS, providing a population highly likely to engage in a web-based survey (Dillman, 2000). Fowler (2009) also claims that if the population has virtually universal access to email, uses the Internet routinely, and the survey comes from an institution in which respondents are members, response rates are likely to increase. Response rates by campus were calculated to determine a basic parameter of the percentage of participants who did and did not respond to the field survey, and are reported in the Response Rates section of Chapter 4. Total population and group response rates were calculated by campus using the following formula (Johnson & Christenson, 2008):

$$Number\ of\ \frac{respondents}{N}\ x\ 100 = Response\ rate$$

Using demographic data derived from NCES (2012) as the baseline for comparison, general response rates for the following sociodemographic characteristics at each institution were calculated using Johnson and Christenson's (2008) formula: (1) Total population by campus, (2) faculty by race and campus, (3) academic leaders by race and campus, (4) total faculty by gender and campus, and (5) academic leaders by gender and campus, for a total of 17 sub-analyses per institution. Although an acceptable response rate of 25% was established for the pilot test conducted in this study, an acceptable baseline for response rates was not established for the field administration of the survey and respondent representativeness was examined through statistical procedures. This decision was made primarily due to Dillman's (2007) assertion that web-based polls are still in their infancy and relatively unexplored in empirical research, and there is no agreed-upon acceptable response rate for Internet surveys. Further support for this decision includes Cook, Heath, and Thompson's (2000) claim that "the representativeness of our samples is much more important than the response rates we obtain" (p. 821) and Fowler's (2009) assertion that many web-based survey researchers have adopted the U.S. Bureau of the Census minimum standard of 5% due to rapidly declining response rates in U.S. survey polls by mail and telephone methods.

Non-response bias.

Non-response bias, or error, occurs when a percentage of the population does not complete the survey, thus nonrespondents may have different characteristics or represent different attitudes than those who did respond, possibly changing the overall survey

results if they had responded, and reducing the ability to generalize results to the entire population (Babbie, 1990; Dillman, 2007; Fowler, 2009; Sue & Ritter, 2007). Representativeness in survey research generally refers to how well the sample drawn from the questionnaire research compares with the population of interest to allow for statistical inference about that population (Babbie, 1990; Cook, Heath, & Thompson, 2000). As the entire population of faculty and academic leaders within the CCCS were queried in this study, however, the term representativeness refers to how well the respondents compared with, or represented, the nonrespondents by sociodemographic characteristics Gender and Race/Ethnicity at each campus. These demographic categories were selected specifically for analyses due to the predominant representation of White female individuals within the CCCS, as reflected in NCES (2012) data.

Additionally, in compliance with the CCCS Provost's request for participant anonymity, the researcher did not have access to participant emails, thus a method to contact or "code" (Fowler, 2009, p. 60) nonrespondents was not established, limiting the ability to contact nonrespondents for further inquiry and assess representativeness through follow-up means. Subsequently, representativeness was assessed through statistical methods guided by the following questions and analyses: (1) Do responses to each scale vary significantly across email waves? (2) Do nonrespondents differ significantly from respondents by demographic characteristics Gender and Race/Ethnicity? A wave analysis (Fowler, 2009; Lankford, Buxton, Hetzler, & Little, 1995) was first conducted wherein general response rates were monitored during the open submission period and rates were compared week by week to determine if rates had changed and/or if more action or additional methods were necessary to elicit greater

response. The wave analysis procedure involved accumulating responses by wave and comparing them across waves (weeks 1, 2, 3, 4, and 5). A one-way analysis of variance (ANOVA) statistic was performed to assess if statistical differences existed across all 5 weeks or four waves (Morgan, Leech, Gloeckner, & Barrett, 2011). A Chi-square analysis using weight cases was used to compare the demographic characteristics of the respondents versus the nonrespondents by campus to assess representativeness (Howell, 2008). An alpha level of $p \leq .05$ was used for each test.

After all responses were collected and the submission period closed, a missing values/data analysis was conducted on each section of the survey to determine how much data were missing, and the kind of data that were missing (single items or a full questionnaire), to discern the number of respondents who returned a usable (completed) survey, and to ensure accurate interpretation of results. Determining what kind of data were missing included closely inspecting frequencies for the EFEA and ISSA scaled (or continuous) variables, and inspecting and counting data for the dichotomous variables (Demographics and Faculty Engagement Practices).

Achieving accuracy also entailed the decision to delete or retain missing values. Dillman, Eltinge, Groves, and Little (2002) state that deleting cases (items) or a full scale (units) results in a smaller sample size and thus larger standard errors, and therefore recommend that cases not be deleted if *n* on the scaled items is < 500. However, the authors also contend that the power to find a significant result decreases and bias can be introduced into effect estimates such as mean differences (*t*-tests) or regression coefficients if missing values are imputed or replaced. Sweet and Grace-Miller (2011) contend that imputing missing values should be used in samples wherein *n* = several

thousand, but replacing missing values with the series (scale or subscale) mean is appropriate if the total missing < 5%.

The decision was made to delete missing units (cases wherein the full EFEA scale was not completed) and to adjust scale scores for missing data points (items from one unit) if at least 60% of the items were completed; e.g., a respondent completed three out of 5 items on the EFFECT subscale. If a participant did not complete at least 60% of items on a scale, the case was removed from analysis. Missing values were also assessed by examining each case and unit in SPSS 20.0 and MS Excel to identify if they were random or non-random, as non-random data may indicate a problem with the scores on the variables or instrument, and can create problems with statistical analysis and therefore interpretation of results (Dillman, Eltinge, Groves, & Little, 2002). Dillman, Eltinge, Groves, and Little's definition of missing data was used to identify the types that were present: 1) Missing Completely at Random (MCAR), e.g., a unit skips an item or a section of the scale unrelated to other missing values; 2) Missing at Random (MAR), e.g., a variable on the scale has more missing values than another variable on the scale; and 3) Missing Not at Random (MNAR), e.g., one variable has a repeated pattern of missing values related to the scores on the variable itself.

Missing values, general response rates, wave analysis results, and representativeness (or estimates of non-response bias) are reported in Chapter 4. Finally, *Unknown* potential respondents that did not self-identify in NCES data (2012) were removed from analyses (1 academic leader and 124 faculty members), reducing the academic leader population from 97 to 96, the faculty population from 5,254 to 5,130, and the total population from 5,351 to 5,226.

Estimates of reliability.

Reliability of the EFEA instrument in the field study was estimated using internal consistency; specifically, Cronbach's alpha and item analysis.

Internal consistency.

Consistent with Pilot Study methods, a Cronbach's coefficient alpha (α) (DeVellis, 2003) was calculated on the two proposed independent variables (13 items on IV1: FUNCTION and 13 items on IV2: INFLUENCE), and the dependent variable (5 items on DV: EFFECT) to provide an estimate of internal consistency of CCCS faculty and academic leader scores. Alpha informed the researcher about the degree to which the items were interrelated, and a result size lower than .70 could have indicated that items were inconsistent or did not relate well to each other, questions were written poorly, or a systematic bias was introduced by the scale itself.

Item analysis.

An item analysis was performed to assess the contribution of the items to the scales and to identify non-performing items using a .70 Cronbach's alpha estimate as a minimum criterion for item retention. The aggregate of all scores for each item was identified in a correlation matrix produced from the item analysis, wherein decisions about retaining or removing items were made. Examination of the item analysis results, or item statistics, included item means, item variance, and item discrimination (or item-scale correlation) that demonstrated the association between individual items and overall test performance (DeVellis, 2003).

Items were assessed in the field instrument using the following criteria: (1) item means closer to the center of the scale (not < 1.5 or > 3.5), (2) higher versus lower

standard deviations or variance, (3) positive inter-item correlations, (4) higher versus lower item-scale correlations (>.30), and (5) items that maximized Cronbach's alpha for minimal scale length (DeVellis, 2003; Field, 2005). Items that demonstrated poor or low performance on any of the 5 evaluation criteria were examined across a decision matrix and considered for removal. Items were then evaluated for their contribution or relevance to the hypothetical latent constructs to determine if their removal would impact the significance of the study. Items that performed well in all 5 categories were not considered for removal and not included in the decision matrix. If the final decision included item removal, Cronbach's alpha was re-estimated to assess subsequent scale performance.

Estimates of validity.

To ensure that the instruments in this study measured what they were intended to measure for the given sample and context (Johnson & Christenson, 2008), validity in the field study was assessed using construct validity, specifically, convergent validity between the EFEA and the *Institutional Support for Student Assessment* (ISSA) inventory (Peterson, Augustine, Einarson, & Vaughan, 1999) scales and subscales.

Construct validity.

Construct validity was assessed using convergent validity, which refers to the extent that scores reflect the theory behind the constructs being measured and the degree to which a measure or criteria converges on external measures that it theoretically should be similar to (Johnson & Christensen, 2008; Sax, 1997). In this study, 31 scaled variables were situated within hypothetical variables IV1: FUNCTION (13 indicators), IV2: INFLUENCE (13 indicators), and DV: EFFECT (5 indicators). Three similar theoretical

constructs using summated rating scales were located and evaluated for their convergence to the three constructs developed in this study. The three ISSA scales selected for convergent validity to the EFEA constructs included (1) Functioning: *Assessment Management Practices and Policies,* representing academic leader perceptions about whether or not assessment-related policies and practices existed and operated at their institution; (2) Influence: *Institution-wide Support for Student Assessment,* representing academic leader perceptions about whether or not institutional practices were designed to support and/or increase student assessment efforts; and (3) Effectiveness: *Faculty Attitudes toward Student Assessment,* representing faculty perceptions about whether or not the reported benefits of engaging with assessment met institutional outcomes. CCCS faculty and academic leaders were asked to respond to the ISSA items located at the end of the survey. New variables were created for the EFEA total scale score, the ISSA total scale score, the three EFEA subscales, and the three ISSA subscales. Intercorrelations between the aggregate scores from the corresponding measures on the ISSA and the EFEA scores were calculated for construct validity using Pearson's *r* correlation coefficient (Field, 2005; Johnson & Christensen, 2008).

Descriptive statistics.

Descriptive statistics were generated to describe each variable in this study, to summarize the data set, and to present general associations between variables (Babbie, 1990). Data from the field survey were collected using webhost *SurveyMonkey* and then exported to *SPSS 20.0* and *MS Excel* software programs for appropriate analyses. Descriptive statistics were used to answer research questions 1 and 4 in the field study.

Inferential statistics.

As the entire population of faculty and academic leaders within the CCCS were included in the field study, inferences in this case were made about the entire population of the two groups based on respondent data. Associations among all scales were calculated to include intercorrelations between dependent and independent variables and effect size. Intercorrelations were calculated using a Pearson's *r* correlation coefficient (Johnson & Christensen, 2008) and were displayed in a correlation matrix. Inferential statistics were used to answer research questions 2 and 3 in the field study.

Research questions.

Research Question 1.

1. What are CCCS faculty and academic leaders' perceptions about institutional conditions that presumably elicit effective faculty engagement with assessment as represented by the following constructs :
    a. Perceived Levels of Functioning?
    b. Perceived Levels of Influence?
    c. Perceived Levels of Effectiveness?

First, latent constructs, or constructs that may underlie or link together the three observed variables in this study, were pursued through an exploratory factor analysis (EFA), specifically, principal factors analysis (PFA) (Tabachnick & Fidell, 2007). EFA was selected in order to describe and summarize data by grouping together observed variables that were potentially correlated (Tabachnick & Fidell, 2007). The variables in this study were constructed with potential underlying processes in mind, alongside the goal of consolidating variables and explaining the structure of the variables. PFA was

selected rather than its more traditional counterpart, principal components analysis (PCA), as the objectives of this research were to discern if the newly developed EFEA instrument was theoretically sound, and to discover any latent associations between two or more groups of variables by examining covariance among observed variables rather than variance among components (Tabachnick & Fidell, 2007). Also, as this study was designed on the basis of detecting underlying constructs that were expected to produce scores on the observed variables, combinations of extracted factors served as better estimates of hypothetical error-free variables than components.

The researcher first examined the factorability of the correlations among items on the EFEA total scale to determine if the data were suitable for factoring. A Kaiser-Meyer-Olkin (KMO) test of sampling adequacy was performed to determine the partial correlations among variables using a coefficient of > .60 (Tabachnick & Fidell, 2007). A Bartlett's test of sphericity was also performed to test for statistical significance to discern if the variables were statistically related to each other. A significance level of $p \leq .05$ was employed for this test. A check for multicollinearity was conducted to determine if very high or very low correlations existed among items and/or if items were suitable for analysis.

Factor extraction was first performed using a PFA without rotation on the EFEA total scale in order to examine the shared variance in the observed variables and to determine if the variables were the "cause" (DeVellis, 2003, p. 128) of the item scores. The following techniques were used to determine the number of factors that were present: (1) Cattell's (1966) scree plot, (2) the number of items that loaded on a factor, (3) variance explained, and (4) parallel analysis. The eigenvalues, or measures of generalized

variance in the correlation matrix (DeVellis, 2009; Furr & Bacharach, 2008; Tabachnick & Fidell, 2007), were reported. DeVellis (citing Kaiser, 1960) claims when selecting which factors to use for primary research, the eigenvalue should be > 1.0 or higher; therefore, factors with an eigenvalue of 1.0 or higher were selected for review.

Tabachnick and Fidell (2007) indicate that enough factors should be retained to account for at least 30% of the variance. A parallel analysis using an equivalent random data matrix was developed and used to compare the eigenvalues of the actual dataset and a simulated dataset. Factors were retained for analysis if the eigenvalues for the extracted factors in the real dataset were larger than the invented dataset. Furr and Bacharach (2008) claim that if the latent variable is true in the real dataset, it should be larger than in the invented dataset. A rotated PFA for the EFEA total scale was then conducted using an orthogonal method (varimax) to maximize the loadings of each variable on one of the extracted factors and minimize loadings on all other factors (Field, 2009). Rotation was also used in order to maximize high correlations between factors and variables and minimize low ones. Orthogonal rotation was selected for use, as variables were assumed to be statistically independent of each other, potentially reflecting uncorrelated dimensions and eliminating possible redundancy in the information contained in the factors (DeVellis, 2003).

Factor loadings and cross-loadings (secondary loadings) were interpreted using Stevens' (2002) recommendation to suppress items with factor scores lower than .40, as anything lower does not represent substantive values or correlations. Factors that emerged as clusters or groupings were labeled with appropriate terminology. Finally,

subscale scores were estimated by summing and averaging the standardized scores for the salient variables.

Descriptive statistics were then calculated to develop an initial depiction of faculty and academic leaders' perceptions on the two proposed independent variables and dependent variable. Frequency distributions of demographic data were reviewed to look for outliers, and to report the frequencies of variables. The mean, the standard deviations, highest and lowest scores for both groups (range), and skewness and kurtosis were calculated and reported for each scale. The two proposed independent variables, IV1: FUNCTION and IV2: INFLUENCE, presumably each contained 12 indicators, thus subscales of corresponding items were established that produced scores from each group. The dependent variable, DV1: EFFECT, contained 5 indicators that also reflected a subscale that produced scores from each group. Scores from the 31 items that represented the 29 indicators were aggregated to produce a total scale score for each scale.

Research Question 2.

2. What relationships, if any, exist between and among the EFEA constructs with respect to academic status (faculty compared to academic leaders)? Do relationships among EFEA constructs differ for faculty compared to academic leaders? Further, is there a statistically significant difference in faculty and academic leader views about these constructs?

Correlation was used to examine potential relationships between variables and groups by using Pearson's correlation coefficient (r) (Morgan, Leech, Gloeckner, & Barrett, 2011). This aided in understanding the agreement, or relationship, and the direction (positive or negative) between the proposed independent variables (IV1:

FUNCTION and IV2: INFLUENCE) and the proposed dependent variable (DV1: EFFECT). Scatterplots were used to check for linearity between variables, normal distribution, and outliers. Independent samples *t*-tests (Howell, 2008) were performed on the resultant measures from the PFA in order to investigate statistically significant differences (if any) between the means of two independent groups. Population variances between each group were assumed to be equal unless the homogeneity of variance test indicated significance. Effect size (Cohen's *d*) was reported to indicate the magnitude or strength of the differences between the group means. An alpha level of $p \leq .05$ was used to declare statistical significance for both analyses. A significance test of differences between independent correlation coefficients was calculated to assess if there were statistically significant differences between correlation coefficients attained for academic leaders and faculty on FUNCTION and INFLUENCE, FUNCTION and EFFECT, and INFLUENCE and EFFECT.

Research Question 3.

3. Do the two constructs of Functioning and Influence predict the outcome variable Effectiveness for the entire sample, for academic leaders and for faculty? Is prediction significantly different for those two groups?

A standard (or simultaneous) multiple regression analysis (Tabachnick & Fidell, 2007) was performed to examine if the two independent variables, IV1: FUNCTION and IV2: INFLUENCE, were able to predict values on the outcome variable, DV1: EFFECT. This method enabled the researcher to determine how well the linear combination of the observed variables predicted the outcome or results; i.e., how well the two scales for

FUNCTION and INFLUENCE predicted the levels of Effectiveness as measured by the EFFECT scale.

Tabachnick and Fidell (2007) further explain that the primary goal of regression analysis is to investigate the relationship between a dependent variable and several independent variables to determine how strong the relationship is between the variables and to assess the importance of each of the independent variables to the relationship. This analysis allowed the researcher to arrive at a set of *B* values, or regression coefficients, for the independent variables that brought the values predicted from the equation as close as possible to the values obtained by measurement. R-squared (R^2) is a measure of effect size and indicates how much variability is accounted for by the model, thus was also reported (Tabachnick & Fidell, 2007). A test of significance between correlation coefficients was calculated to assess if there was a statistically significant difference between the multiple correlation coefficients attained for academic leaders and faculty.

Research Question 4.

4. What are faculty perceptions of their own engagement with learning outcomes assessment? Specifically,
    a. In what learning outcomes assessment practices do faculty engage?
    b. Why do faculty engage with these practices?
    c. How do faculty know student learning has occurred?
    d. What kind of data inform changes faculty make to their teaching practices?

The four Engagement variables were considered categorical and included: (1) Examples of Practice, (2) Reasons for Engaging, (3) Evidence of Learning, and (4) How

Data are Used. Engagement practices identified by CMC pilot faculty participants were adopted for use in the field analyses, and included 15 'Select all that Apply' (or multiple response) options per question. A selected response was considered a 'Yes' while a non-selected response was considered a 'No', and coded accordingly for analysis. Frequency distributions of data were generated to identify the most common responses by faculty on the four Engagement variables. Responses in the *Other* response category were compiled and reported as an additional category in the frequency analyses. Results from the descriptive analyses were used to make comparisons and examine differences between full-time and part-time faculty using Demographic variable *Faculty Position Type*. A Chi-square test of statistical significance was performed, as variables were considered categorical/dichotomous and therefore required a non-parametric test (Morgan, Leech, Gloeckner, & Barrett, 2011). An alpha level of $p \leq .05$ was utilized.

Summary

This study specifically sought to determine if faculty perceptions about conditions that presumably elicit greater engagement with learning outcomes assessment within the Colorado Community College System (CCCS) aligned with academic leaders' perceptions, to test a new measure of effective faculty engagement with learning outcomes assessment, to illuminate faculty perceptions about their own practices and the impact of those practices on student learning, and to establish a venue for representation of faculty at public two-year institutions in the Scholarship of Assessment (SoA) literature.

These objectives were accomplished by developing and testing a new measure designed to: (1) describe CCCS faculty and academic leaders' perceptions on three newly

established constructs comprising 31 variables representing 12 institutional conditions and 5 effectiveness indicators; (2) examine the relationships between the three constructs by academic status; (3) examine the differences between these perceptions through scores on measures created from items that reflected the extent to which the 12 conditions were present and functioning, the extent to which the 12 conditions influenced greater faculty engagement, and the extent to which the 5 indicators of effectiveness were established a result of faculty engagement with learning outcomes assessment; and (4) solicit faculty perceptions about their own levels of engagement and subsequent reasons for engaging with learning outcomes assessment.

Ethics

Participants' identity and email addresses were not disclosed to the researcher and thus remained anonymous in the pilot and field studies. A statement of anonymity was included on the entry page to the electronic survey. Participants reflected their consent by agreeing to participate in the survey. The panel of experts and cognitive interviewees provided professional information, but their identity remained confidential and was known only to the researcher. Permission was granted in writing from these ten individuals to present their professional information without disclosure of names or identifiable characteristics. The researcher was committed to administering the pilot and field studies with integrity and honest disclosure of results and interpretation of findings.

Chapter Four: Results

This study was a non-experimental comparative study using attribute variables to determine if relationships and/or differences existed between faculty and academic leaders within the Colorado Community College System (CCCS) about institutional conditions reported by the Scholarship of Assessment (SoA) literature as necessary to elicit faculty engagement with learning outcomes assessment (LOA). Both groups were asked via a web-based survey if 12 institutional conditions were present and functioning at their institution, if these conditions increased faculty engagement with LOA, and if 5 indicators of assessment effectiveness were achieved as a result of greater faculty engagement. This investigation was designed to examine whether or not institutional and faculty assessment practices were in alignment at public two-year institutions, to discern if faculty LOA practices were transparent to their institutions, and to provide faculty at public two-year institutions a voice within the SoA literature about LOA practices they employed.

This chapter presents the results and major findings of the data analyses from the pilot and the field administrations of the newly established *Effective Faculty Engagement with Assessment* (EFEA) survey instrument. Faculty and academic leaders attitudes were gathered and measured through items inspired by the 2009 *Faculty Survey of Student Engagement* (FSSE) supplemental survey (Haywood, Shaw, Nelson-Laird, & Cole, 2011), the 1997 *Institutional Support for Student Assessment* (ISSA) inventory (Peterson,

Augustine, Einarson, & Vaughan, 1999), and the 2009 *Community College Faculty Survey of Student Engagement* (CCFSSE) (Center for Community College Student Engagement, 2012). Results from the response rates analyses are presented first, followed by reliability and validity estimates and descriptive and inferential statistics. Major findings are discussed after each results section, while overall discussion is presented in Chapter 5. As described in Chapter 3, descriptive statistics were used to answer Research Questions 1 and 4, and inferential statistics were used to answer Research Questions 2 and 3. The research questions in this study were:

1. What are CCCS faculty and academic leaders' perceptions about institutional conditions that presumably elicit effective faculty engagement with assessment as represented by the following constructs :
    a. Perceived Levels of Functioning?
    b. Perceived Levels of Influence?
    c. Perceived Levels of Effectiveness?
2. What relationships, if any, exist between and among the EFEA constructs with respect to academic status (faculty compared to academic leaders)? Do relationships among EFEA constructs differ for faculty compared to academic leaders? Further, is there a statistically significant difference in faculty and academic leader views about these constructs?
3. Do the two variables Functioning and Influence predict the outcome variable Effectiveness for the entire sample, for academic leaders and for faculty? Is prediction significantly different for those two groups?

4. What are faculty perceptions of their own engagement with learning outcomes assessment? Specifically,
    e. In what learning outcomes assessment practices do faculty engage?
    f. Why do faculty engage with these practices?
    g. How do faculty know student learning has occurred?
    h. What kind of data inform changes faculty make to their teaching practices?

Pilot Study Results

Pilot response rates.

After one week, the wave analysis reflected the response rate was fairly low for both faculty (10%) and academic leaders (33%), and that all responses were from one campus. The researcher called both CEO's to request they send a follow-up reminder at the beginning of the second week of the open period, again requesting the CEO's to encourage participation. The researcher learned that the interim CEO at the second campus had not yet sent the surveys to their campus groups, providing a better understanding of the low response rates. The researcher therefore kept the survey open for an additional two weeks to ensure all participants had equal opportunity to partake; thus, the closing date for the pilot survey was August 19, 2012. After the surveys were sent to the second campus, and the second reminder was sent to the first campus, the response rates increased and are presented in Table 5 below.

Table 5
Pilot Test Response Rates

	Campus 1		Campus 2		Total	
	Academic leaders	Faculty	Academic leaders	Faculty	Academic leaders	Faculty
Week 1	0	0	2	4	2	4
Week 2	2	13	2	17	4	30
Total	2	13	4	21	6	34
Response rate	33%	11%	67%	17%	100%	28%

While the academic leader response rate was considered very good, the response rate for faculty just achieved the target 25% acceptable rate at 28%. Although the total response rate for all respondents was acceptable at 33% (40/121), this study sought to examine differences in faculty and academic leaders' perceptions, thus separate response rates were reported. Due to these results and the disparate range of acceptable response rates for web-based surveys in the literature; e.g., 24 to 76% (Dillman, 2007; Hamilton, 2004; Kwak and Radler, 2002), general response rates for the field study were monitored and reported without establishing an acceptable threshold. An incentive for participation, a 2012 *Kindle Fire HD* electronic tablet, was added to the field survey in an effort to enhance response rates and statistical analyses were performed to assess representativeness or response bias.

Pilot estimates of reliability and validity.

Reliability.

Cognitive interviews.

Willis (2005) suggests that in processing, analyzing, and documenting cognitive interview results, data can be grouped into 5 major categories of outcomes: (1) Item-

specific recommendations for changes to wording (cognitive, logical/structural, culturally-oriented defects); (2) Need for further specification of objectives or the manner in which the questions satisfy them; (3) Problems related to ordering (of items, sections, and so on) and other interactions between survey questions; (4) Problems related to reduction in overall instrument length or burden; and (5) Limitation on what can be asked of survey respondents using the intended procedures. Cognitive interview data were categorized accordingly (See Appendix P).

Results of the cognitive interviews revealed various concerns with items and instructions. Issues of clarity, length, and conciseness emerged consistently for two scaled items: one in IV1: FUNCTION (F8), 'To what extent are learning outcomes assessment practices at your institution established in the service of student learning above institutional accountability?' and its counterpart in IV2: INFLUENCE (I20), 'To what extent does establishing learning outcomes assessment practices in the service of student learning increase faculty engagement with learning outcomes assessment at your institution?' Concerns about definitions of certain terms; e.g., 'institutional accountability', 'learner-centered culture', and 'embedded' were prevalent among all interviewees, as was the request to include examples to clarify phrases; e.g., 'top leadership', 'collaborative opportunities', resources', and 'rewards'.

Three interviewees commented that items in the second section (IV2: INFLUENCE) were redundant of items in the first section (IV1: FUNCTION); however, upon investigation, the researcher found these items essential for measuring the construct and for reliability purposes, thus no changes were made due to these comments. Finally, four interviewees suggested that the information contained in the email; e.g., informed

consent, survey instructions, and the link to the survey, should be included at the beginning of the survey itself as respondents may be reluctant to read such a lengthy introduction in an email.

The following actions were taken prior to the review of content expert analysis and pilot survey administration: (1) Two questions (F9 & I22) were added to both instruments, thus increasing the item total for the EFEA scale to 31; (2) comments or suggestions that were applicable or relevant were adopted (40 out of 71, including duplicates); (3) examples were provided within the specified items to aid participants unfamiliar with learning outcomes assessment terminology or practices; (4) operational definitions were added to the Instructions section; and (5) the Informed Consent protocol was moved from the introductory participant email to the first page of the survey instrument.

Findings from the cognitive interviews reflected that some wording and content concerns were present. Interviewee comments and suggestions were summed as follows: (1) Include clear examples for unfamiliar terms, (2) Provide definitions of unfamiliar terms, (3) Reduce redundancy among questions, (4) Shorten the introductory email or move the instructions, informed consent, and researcher information into the survey, and (5) Provide color and more inspiring language in the email to promote interest. Comments were predominantly related to the instructions, the introductory email, and items that included assessment and institutional terms that appeared unfamiliar to adjunct or part-time faculty. These results indicated that broader adjustments to the overall survey were necessary rather than specific adjustments to items on the EFEA scale and/or subscales, further indicating the scales were relatively reliable (see Appendix Q).

Internal consistency.

A Cronbach's coefficient alpha (α) (DeVellis, 2003) was calculated on the two proposed independent variables (13 items on IV1: FUNCTION and 13 items on IV2: INFLUENCE), and the dependent variable (5 items on DV: EFFECT) to provide an estimate of internal consistency in the pilot sample of CMC faculty and academic leaders (n = 40). Results of the Cronbach's alpha test for the total EFEA scale and three subscales ranged from very strong to excellent as reflected in high alpha coefficients and low error variance: (1) α_{EFEA} scale = .93 [error variance = .07]; (2) $\alpha_{FUNCTION}$ = .89 [error variance = .11]; (3) $\alpha_{INFLUENCE}$ = .89 [error variance = .11]; and (4) α_{EFFECT} = .81 [error variance = .19].

Findings reflected strong internal consistency (DeVellis, 2003; Morgan, Leech, Gloeckner, & Barrett, 2011; Sue & Ritter, 2007). Further, high correlations among the items implied strong links between the items and latent variable(s). Since the ultimate score sought in items was a high correlation with the true score of the latent variable, alphas reflected high individual item reliabilities, and the items were intimately related to the latent variable(s). These results indicated, therefore, that the 31 items as a scale were highly related, the subscale items were highly related, the items within each scale were all measuring the same construct(s), and the items provided strong internal consistency reliability. The slightly lower alpha coefficient for the EFFECT subscale (.81) may have been attributed to the lower number of items than the other two subscales (DeVellis, 2003; Sue & Ritter, 2007).

Item analysis.

An item analysis was performed to assess the contribution of the items to the scale and to identify non-performing items using a .70 Cronbach's alpha estimate as a minimum criterion for item retention. Items were assessed for inclusion in the field instrument using the following criteria: (1) item means closer to the center of the scale (not < 1.5 or > 3.5), (2) higher versus lower standard deviations or variance, (3) positive inter-item correlations, (4) higher versus lower item-scale correlations (>.30), and (5) items that maximized Cronbach's alpha for minimal scale length (DeVellis, 2003; Field, 2005).

Results for the EFEA total scale.

First, reliability statistics for the overall EFEA scale were evaluated. Table 6 presents the decision matrix of items that surfaced as poor performers in the overall EFEA scale analysis. As indicated, Cronbach's alpha for the scale was .93, reflecting strong internal consistency among items. Item statistics reveal an overall mean of 2.64, reflecting average scores close to the center of the scale (1-4). Two individual item means, I21 (3.48) and E29 (3.48), reflected values very close to the high end of the poor performance criteria of > 3.5, thus were included in the decision matrix. Overall item variance was .70. Second, results of the inter-item correlation reflected 35 negative correlations between items (31 x 31 = 961/2 = 480.5 correlations reviewed).

Table 6
Summary Item Analysis - EFEA Scale Decision Matrix

	Decision criteria					
	Item	Cronbach's alpha	Item statistics	Inter-item correlation	Item-scale correlation	Cronbach's alpha if item deleted
Scale		0.933	M=2.64, V=.70	Negative inter-item correlations		
EFEA	F1	0.933	M=2.05, V=.88	3	0.54	0.931
	F7	0.933	M=2.2, V=.85	8	0.34	0.933
	F8	0.933	M=2.78, V=.70	5	0.24	0.934
	F9	0.933	M=3.15, V=.70	3	0.42	0.932
	F10	0.933	M=2.15, V=1.0	4	0.49	0.932
	F11	0.933	M=2.15, V=.80	12	0.15	0.935
	I15	0.933	M=2.78, V=.95	3	0.45	0.932
	I21	0.933	M=3.48, V=.68	4	0.49	0.931
	I23	0.933	M=2.33, V=1.0	5	0.62	0.930
	E29	0.933	M=3.48, V=.60	5	0.40	0.932

After close examination, 10 items consistently demonstrated negative correlations with more than one other item, and were thus placed in the decision table for further review. Third, item-scale statistics were evaluated including the scale mean if items were deleted, scale variance if items were deleted, corrected item-scale correlations of .30 or greater (Field, 2005), and Cronbach's alpha if items were deleted.

Results for the FUNCTION scale.

The procedures used for the EFEA scale analysis were employed for all three subscales. Cronbach's alpha for the FUNCTION subscale was .89, reflecting good internal consistency among items. Item statistics revealed an overall mean of 2.29, reflecting average scores slightly below the center of the scale (2.5). No individual item means reflected poor performance, and overall item variance was .66, reflecting slightly lower variance than the EFEA scale as a whole. Results of the inter-item correlation reflected seven negative correlations between items (13 x 13 = 169/2 = 84.5 correlations reviewed). Six items demonstrated negative correlations with more than one other item, and were thus placed in the decision matrix for further review. Item-scale statistics were evaluated including the scale mean if items were deleted, scale variance if items were deleted, corrected item-scale correlations of .30 or greater, and Cronbach's alpha if items were deleted. The results of the poorest performing items for the FUNCTION subscale are presented in Table 7.

Table 7
Summary Item Analysis - FUNCTION Scale Decision Matrix

	Decision criteria					
	Item	Cronbach's alpha	Item statistics	Inter-item correlation	Item-scale correlation	Cronbach's alpha if item deleted
Scale		0.886	M=2.29, V=.66	No. of negative inter-item correlations		
FUNCTION	F1	0.886	M=2.05, V=.88	1	0.68	0.872
	F2	0.886	M=2.68, V=.83	1	0.60	0.877
	F8	0.886	M=2.78, V=.70	1	0.28	0.891
	F9	0.886	M=3.15, V=.70	1	0.41	0.885
	F11	0.886	M=2.15, V=.80	2	0.19	0.896
	F13	0.886	M=2.08, V=.83	1	0.68	0.872

Results for the INFLUENCE scale.

Cronbach's alpha for the INFLUENCE subscale was .89, reflecting good internal consistency among items. Item statistics reveal an overall mean of 2.83, reflecting average scores slightly above the center of the scale (2.5). One individual item mean, I21 (3.47), reflected a value very close to the high end of the poor performance criteria of > 3.5, thus was included in the decision matrix. Overall item variance was .78, reflecting slightly higher variance than the EFEA scale as a whole and higher variance than the FUNCTION subscale. Results of the inter-item correlation reflected four negative correlations between items (13 x 13 = 169/2 = 84.5 correlations reviewed). Three items demonstrated negative correlations with more than one other item, and were thus placed

in the decision table for further review. Item-scale statistics were evaluated including the scale mean if items were deleted, scale variance if items were deleted, corrected item-scale correlations of .30 or greater, and Cronbach's alpha if items were deleted. The results of the poorest performing items for the INFLUENCE subscale are presented in Table 8.

Table 8
Summary Item Analysis - INFLUENCE Scale Decision Matrix

	Decision criteria					
	Item	Cronbach's alpha	Item statistics	Inter-item correlation	Item-scale correlation	Cronbach's alpha if item deleted
Scale		0.886	M=2.83, V=.78	No. of negative inter-item correlations		
INFLUENCE	I15	0.886	M=2.78, V=.95	1	0.42	0.885
	I21	0.886	M=3.47, V=.68	1	0.64	0.875
	I23	0.886	M=2.33, V=.98	2	0.48	0.882

Results for the EFFECT scale.

Cronbach's alpha for the EFFECT subscale was .81, reflecting sufficient internal consistency among items. Item statistics reveal an overall mean of 3.06, reflecting average scores above the center of the scale (2.5). One individual item mean, E29 (3.48), reflected a value very close to the high end of the poor performance criteria of > 3.5, thus was included in the decision matrix. Overall item variance was .60, reflecting lower variance than the total EFEA scale and the FUNCTION and INFLUENCE subscales. Results of the inter-item correlation reflected no negative correlations between items (5 x

5 = 25/2 = 12.5 correlations reviewed). Item-scale statistics were evaluated including the scale mean if items were deleted, scale variance if items were deleted, corrected item-scale correlations of .30 or greater, and Cronbach's alpha if items were deleted. The results of the poorest performing items for the EFFECT subscale are presented in Table 9.

Table 9
Summary Item Analysis - EFFECT Scale Decision Matrix

	Decision criteria					
	Item	Cronbach's alpha	Item statistics	Inter-item correlation	Item-scale correlation	Cronbach's alpha if item deleted
Scale		0.810	M=3.06, V=.60	No. of negative inter-item correlations		
EFFECT	E29	0.810	M=3.48, V=.60	0	0.55	0.79

Overall, findings demonstrated that the means, variance, and impact on Cronbach's alpha if any items were removed indicated poor performing items posed minimal effect on any scale's reliability if removed; e.g., the maximum increase in alpha was .002 if any item was removed from the EFEA total scale. The high means and low variances for items on the EFFECT subscale indicated that most participants agreed with the statements and there was little diversity in their responses. Although these items were located at the end of the total scale, indicating possible saturation of interest by respondents (Dillman, 2007), the items' location represented the logical, sequential flow of the constructs under investigation, and were therefore not re-located. While the EFFECT subscale demonstrated the poorest performance overall with the lowest alpha, lowest item variance, and highest item means, this subscale had the fewest comments

from cognitive interviews and content experts, and achieved the strongest item-scale correlations, indicating individual EFFECT items correlated substantially with the other EFFECT items.

After assessing each item's overall performance, primarily the effect of the removal of an item on Cronbach's alpha, the decision was made not to remove any items. Item means, item variances, inter-item correlations, item-scale correlations, and internal consistency values reflected good overall performance for the EFEA total scale and the subscales. Acceptable inter-item correlations for 445 out of 480 (93%), and a lack of negative item-scale correlations suggested that the items measured the same, or highly similar, underlying or latent construct on each scale (DeVellis, 2003). Finally, the small number of negative inter-item correlations (35), and the minor increases in alpha if any items were removed, led the researcher to determine the items as grouped achieved very good estimates of reliability.

Validity.

Content expert analysis.

Benson and Clark (1982) claim that "an instrument is considered to be content valid when the items adequately reflect the process and content dimensions of the specified objectives of the instrument as determined by expert opinion" (p. 793). Two panelists indicated agreement with all three categories for all 31 scaled items and the four open-ended items, but provided comments about wording, meaning, and content, thus the researcher placed more emphasis on the written comments if disparity was evident. The other two panelists did not indicate agreement with all categories for all items and provided rationale for their evaluation. Overall, 26 out of 35 items within three evaluation

categories achieved 100% agreement, 6 achieved 75% agreement, and 3 achieved 50% agreement. Content expert responses for the three categories of evaluation and collective ratings are presented in Appendix R.

Further, Grant and Davis (1995) recommend that investigators calculate the level of inter-rater agreement when estimating content validity. Inter-rater agreement for relevancy or representativeness is reflected in the number of agreements among content experts (e.g., all items rated 1 or 2 by panel members) divided by the total number of items on the instrument. Levels of acceptable inter-rater agreement suggested by the literature (Grant & Davis, 1995; Berk, 1990; Mayring, 2000) ranged from .70 to .80. In this pilot test, Yes = 1 and No = 2. There were a possible 420 possible responses with four panelists possessing 105 total response choices (35 items x 3 categories = 105). Using Grant and Davis's formula, the total number of Yes responses was 394; thus, 394/420 = .94. The total number of No responses was 26; thus, 52/420 = .12. Therefore, the total EFEA scale and the three subscales as amended were considered to reflect content validity. Some additional modifications, however, were made to the instrument in an attempt to increase content validity of items that experts indicated did not adequately measure content, correspond with the operational definition, or address the implied meaning of an item. Appendix S presents a summary of content expert commentary and subsequent modifications to the scale and subscales.

Findings from the content expert analyses demonstrated high inter-rater agreement with the criteria used to estimate validity (.94 on 0-1.0 scale). Comments and suggestions from panelists primarily represented specific concerns with item word meaning or agreement between the item and the construct. Some adjustments to the scale

were incorporated, while others did not meet the research goals; e.g., one expert's suggestion to change the intent of the INFLUENCE items from 'increase' to 'affect' was not adopted as this approach did not address the research question about whether or not faculty and academic leaders believed the 12 institutional conditions increased faculty engagement with learning outcomes assessment. Additionally, while the support of executive leadership, for example, may have decreased faculty engagement with assessment, changing the language to investigate a negative impact did not meet the research objectives for this study.

Construct validity.

Construct validity was assessed using convergent validity, which refers to the extent that scores reflect the theory behind the constructs being measured and the degree to which a measure converges on external measures that it theoretically should be similar to (Johnson & Christensen, 2008; Sax, 1997). In this study, 31 scaled variables were situated within hypothetical variables IV1: FUNCTION (13 indicators), IV2: INFLUENCE (13 indicators), and DV: EFFECT (5 indicators). Thus, three similar theoretical constructs using summated rating scales were located and evaluated for their convergence to the three constructs developed in this study. Pilot participants, both faculty and academic leaders, responded to the *Institutional Support for Student Assessment* (ISSA) inventory (Peterson & Augustine, 2000) items located at the end of the EFEA survey.

Results of the intercorrelations were $r = .51$ for the EFEA/ISSA total scales and $r = .66$ for the EFEA/ISSA FUNCTION scales (see Table 10). These correlations were considered moderate and were statistically significant at the .01 level. The EFEA/ISSA

INFLUENCE coefficient (r = .36) reflected a lower correlation and was also statistically significant at the .05 level. The coefficient for the EFFECT scale at r = .17 was not statistically significant. No negative correlations resulted, thus the need to need to reverse score or remove items did not emerge (DeVellis, 2003).

Table 10
EFEA and ISSA Validity Coefficients

	Convergent validity			
Instrument	ISSA total scale	ISSA function subscale	ISSA influence subscale	ISSA effect subscale
EFEA total scale	.51**			
EFEA function subscale		.66**		
EFEA influence subscale			.36*	
EFEA effect subscale				0.17

Note. **Correlation is significant at the 0.01 level. *Correlation is significant at the 0.05 level.

Findings showed that the EFEA total scale demonstrated a sufficient association with the ISSA total scale (r = .51), the EFEA FUNCTION subscale demonstrated a good association with the ISSA FUNCTION subscale (r = .66), the EFEA INFLUENCE subscale demonstrated an acceptable association with the ISSA INFLUENCE subscale (r = .36), and the EFEA EFFECT subscale demonstrated poor association with the ISSA EFFECT subscale (r = .17). All correlations reflected statistically significant relationships except the EFFECT scale. Consequently, the coefficients for the EFEA total scale and the FUNCTION and INFLUENCE subscales reflected that the Perceived Levels of Functioning and Perceived Levels of Influence constructs converged with other constructs reported to measure the same or similar constructs (Peterson, Augustine, Einarson, & Vaughan, 1999), and thus demonstrated sufficient construct validity.

Content analysis.

Results reflect that out of 160 *a priori* words or terms and themes derived from the literature on effective assessment practices (Angelo & Cross, 1993; Banta, 2004; Maki, 2010; Sternberg, Penn, & Hawkins, 2011; Suskie, 2009), 46 matches occurred (duplicates removed), indicating evidence of manifest content. The 46 words, terms or themes were then transferred to a list of response options. The results included 15 response options for each category. Although there were more *a priori* words, terms, or themes that were not expressed by participants than were expressed, all participant responses matched at least one *a priori* word or term and theme, thus all were therefore adopted for use with two exceptions: (1) "Don't know" and (2) "None that I know of". There were 28 out of 34 faculty responses, reflecting six missing cases (see Appendix T).

Findings from the content analysis surpassed the acceptable benchmark of one word, term, or theme match between pilot faculty responses and *a priori* criterion categories (Berg, 1998). There were more *a priori* words, terms, or themes that were not expressed by participants than were expressed, which was attributed to the higher numbers of part-time faculty who indicated they were unfamiliar with assessment terms, the small sample size, and the relatively low mean (6.85) for the years of experience faculty reported with learning outcomes assessment. Further, participants may have felt rushed to complete these items or annoyed that the response options had changed from multiple choice to open-ended. Dillman (2007), DeVellis (2003), and Sue and Ritter (2007) confirm that open-ended items often frustrate participants, thus it is common to have a lower response rate for such categories.

Finally, after a close review of each response, it became evident that over 40% of the responses reflected an example response choice provided by the researcher, indicating participants were likely led by the examples provided for guidance. Therefore, examples of assessment practices were not provided in the field administration of the instrument. The final number of response options included 15 choices in a 'Select all the Apply' format, alongside an "Other" category.

Pilot descriptive statistics.

Descriptive statistics were generated for demographic items in order to describe the variables in the pilot test and to present general associations between variables. Data from the pilot survey were collected using the webhost *SurveyMonkey* and then exported into the *Statistical Package for the Social Sciences* (SPSS 20.0) program for analysis. Frequency distributions for demographic items 1, 2, 3, 6, and 7 (polytomous variables) were generated to look for outliers, which assisted in determining if data were entered correctly, and to report the frequencies of variables to inform the interpretation of data. The means, the standard deviations, highest and lowest scores for both groups (range), and skewness and kurtosis were calculated and reported for demographic items 4 and 5 (*Years of Experience in Learning Outcomes Assessment* and *Present Age*) to discern normality.

Of note, a discrepancy between NCES (2012) demographic data and total numbers the campus CEO's reported for academic leaders in Fall 2011 emerged from inspection of the pilot data. NCES data reflected a total of nine academic leaders, while the CEO's reported a combined total of six (two White males, four White females). Upon inquiry, the interim CEO at the Summit campus reported they had recently incurred a

vacancy at the Summit campus, and that the CMC system adopted a workforce reduction policy two years ago for administrative positions wherein vacant positions were not automatically re-hired. This CEO also stated that one Hispanic female Division Director and one Black male Program Director moved to other campuses within the CMC system within the past two years, thus explaining the decrease from a total of nine academic leaders for both campuses to six.

Pilot academic leader demographic data.

Position type.

A total of six (100%) academic leaders from both campuses responded to the pilot survey, including one Dean of Instruction (16.7%), two Division Directors (33.3%), one Instructional Chair (16.7%), and two Program Directors (33.3%) (see Table 11). While CMC academic leader positions were considered similar in responsibility and scope to academic leader positions within the CCCS, a direct comparison of the same position type was only possible in two categories -- Dean of Instruction and Program Director. Due to the researcher's direct knowledge of CMC positions, and inspection of job responsibilities (CCCS Human Resources webpage), a CMC Instructional Chair was identified as most similar to an Academic Program Dean and a Division Director was identified as most similar to an Assistant or Associate Dean of Instruction/Academics.

Table 11
Descriptive Statistics for CMC Academic Leaders

Characteristic	*n*	%	Mean	Sd	Skewness	Kurtosis
Position type						
Dean of Instruction	1	16.7				
Division Director	1	16.7				
Instructional Chair	2	33.3				
Program Director	2	33.3				
Primary CMC location						
Campus 1	2	33.3				
Campus 2	4	66.6				
Current education level						
Licensure or specialty degree	0	0				
Associate Degree	0	0				
Bachelor Degree	1	16.7				
Master Degree	5	83.3				
Doctoral Degree	0	0				
Years of experience in LOA			3.17	1.33	.326	-2.25
Present age			49.2	8.38	-.637	-.476
Gender						
Female	4	66.6				
Male	2	33.3				
Race/ethnicity						
Am. Indian/Alaskan Native	0	0				
Asian /Pacific Islander	0	0				
Black/African American	0	0				
Hispanic American	0	0				
White/Caucasian	6	100				

Primary CMC location.

A total of four academic leaders responded from Campus 1 (33%) and a total of two responded from Campus 2 (67%) for a response rate of 100% (the vacant position at Campus 1 was not included in count).

Education levels.

Education levels indicated 83% (5) of academic leaders who responded to the pilot survey possessed a Master's degree, and 16.7% (1) possessed a Bachelor's degree. The participant with a Bachelor's degree was identified as a Division Director.

Years of experience in learning outcomes assessment.

Years of experience ranged from two to 5 years, with the highest proportion of academic leaders possessing two years of experience (50%), and the lowest proportion possessing 5 years of experience (16.7%). The mean for this group was 3.17 years of experience, with a standard deviation of 1.33, skewness of .33, and kurtosis of -2.25.

Present age.

Present age of academic leader respondents ranged from 37 to 57 years, with two cases reporting age 57 (33%) and one missing case. The mean academic leader age was 49.2 years, with a standard deviation of 8.38, skewness of -.637, and kurtosis of -.476. The one missing case was transformed into a Pairwise variable for further analysis if needed.

Gender.

Gender of academic leader respondents reflected 4 females (67%) and 2 males (33%). These proportions are representative of the overall CCCS academic leader population of 68% female and 32% male.

Race/ethnicity.

Race/Ethnicity for academic leader respondents reflected a higher proportion of White/Caucasian academic leaders (100%) than the proportion reported in 2011 NCES data for both CMC campuses of 56%. This is likely due to the internal transfers to other campuses of one Hispanic female and one Black male as reported by the Campus 1 interim CEO. The response rate, therefore, does not represent the CCCS population of 58% White/Caucasian academic leaders.

Pilot faculty demographic data.

Position type.

A total of 34 faculty members from both campuses responded to the pilot survey, eight (23.5%) of whom were full-time and 26 (76.5%) were part-time. These proportions were representative of the CCCS total population of 20% full-time faculty (1,075/5,254) and 80% part-time faculty (4,179/5,254) (NCES, 2012). Faculty demographic data are summarized in Table 12 below.

Table 12
Descriptives for CMC Faculty

Characteristic	*n*	%	Mean	Sd	Skewness	Kurtosis
Position type						
Full-time Faculty	8	23.5				
Part-time Faculty	26	76.5				
Primary CMC location						
Campus 1	13	38.2				
Campus 2	21	61.8				
Current education level						
Licensure or specialty degree	0	0				
Associate Degree	2	5.9				
Bachelor Degree	4	11.8				
Master Degree	23	67.6				
Doctoral Degree	5	14.7				
Years of experience in LOA			6.85	6.39	1.99	4.57
Present age			52.26	9.73	-.312	-.685
Gender						
Female	17	50.0				
Male	15	44.1				
Missing	2	5.9				
Race/ethnicity						
Am. Indian/Alaskan Native	1	2.9				
Asian /Pacific Islander	1	2.9				
Black/African American	0	0				
Hispanic American	2	5.9				
White/Caucasian	30	88.2				

Primary CMC location.

A total of 13 (38.2%) faculty members responded from Campus 1 and a total of 21 (61.8%) faculty members responded from Campus 2. This proportion does not

represent the faculty numbers at each campus, as Campus 1 had a higher combined rate of full-time and part-time faculty (61%) than Campus 2 (34%).

Education levels.

Education levels indicated 67.6 % of both full-time and part-time faculty at both campuses who responded to the pilot survey possessed a Master's degree, 14.7 % held a Doctoral degree, 11.8 % held a Bachelor's degree, and 5.9 % possessed an Associate's degree.

Years of experience in learning outcomes assessment.

Years of experience ranged from 0-30 years, with the highest proportion of faculty possessing three years of experience (20.6%), the next highest proportion possessing 5 years of experience (17.6%), and the third highest proportion possessing 10 years of experience (11.8%). The mean for this group was 6.8 years of experience, with a standard deviation of 6.39, skewness of 1.99, and kurtosis of 4.57. The dispersion of scores reflected a high positive skewness, which could have been due to an outlier.

Present age.

Present age of faculty respondents ranged from 31 to 67 years, with equivalent numbers of faculty reporting 51 years (8.8%), 53 years (8.8%), and 56 years (8.8%). The mean faculty age was 52.26 years, with a standard deviation of 9.73, skewness of -.312, and kurtosis of -.685.

Gender.

Gender of CMC faculty respondents reflected 17 females (50%) and 15 males (44.1%) with two missing cases (5.9%). These proportions were representative of the

total CMC faculty population of 54% female and 46% male, and reflected the CCCS faculty population of 51.5% female and 48.5% male.

Race/ethnicity.

Race/Ethnicity for faculty respondents reflected a slightly higher proportion of White/Caucasian faculty members who responded to the survey (88%) than the proportion reported in Fall 2011 NCES (2012) data for both CMC campuses of 75%. This rate was also higher than the CCCS population of 72% White/Caucasian. The CMC response rate of 0% for Black/African American did not represent the CCCS Black/African American faculty population of 8%, nor did the CMC response rate of 6% for Hispanic American faculty represent the CCCS Hispanic American faculty population of 13%. The CMC faculty response rate of nearly 3% did reflect the CCCS Asian/Pacific Islander rate of 4%, and was higher at 2.9 % than the CCCS American Indian/Alaskan Native proportion of 1%.

Findings for faculty included the high positive skewness of 1.99 in the distribution of *Years of Experience in Learning Outcomes Assessment* scores. After inspection of the data and frequency distribution, an outlier of 30 years of experience surfaced, whereas the next highest case reflected 20 years of experience. Sue and Ritter (2007) claim that the mean and standard deviation are sensitive to outliers, which could explain why the standard deviation appeared high (6.39) and the mean appeared low (6.85) in the distribution of scores. The researcher decided to remove the case and re-run the analysis to determine the most appropriate action. Subsequent analysis showed skewness decreased from 1.99 to 1.44, the mean decreased from 6.85 to 6.15, and the standard deviation decreased from 6.39 to 4.99. The decision was to retain the case, as

removal decreased skewness by a relatively small amount (.55), and due to the small number of cases (34), removal of one case may have compromised the integrity of the data (Babbie, 1990; Morgan, Leech, Gloeckner, and Barrett, 2011; Sue & Ritter, 2007). Further, the case represented a full-time faculty member, a minority in this sample, increasing the need for representativeness from both faculty groups. Finally, the faculty demographic variable was not included in reliability and validity estimates of the EFEA scale or subscales, further negating the need to remove the case.

Overall, findings reflected that CMC academic leaders and faculty were representative of CCCS by Gender but not by Race/Ethnicity except in the Asian/Pacific Islander and American Indian/Alaskan Native categories. Due to the small sample (40/121), response bias was not statistically estimated; however, the researcher determined the CMC sample was adequate due to the highly homogenous population to CCCS. Findings also indicated that academic leader *Years of Experience in Learning Outcomes Assessment* which ranged from 2-5 years with a mean of 3.17 years. The faculty mean was 6.85 years, reflecting that academic leaders had less experience with outcomes assessment than faculty. Keeling, Wall, Underhile, and Dungy's (2008) surmise that academic leaders who possess a lack of experience with learning outcomes assessment may also possess a lack of understanding about institutional factors that motivate faculty to engage fully with learning outcomes assessment.

Further, in the field study, CCCS academic leaders reflected a range of 0-32 years with a mean of 11.19 years, indicating that CMC academic leaders were less experienced than CCCS leaders, possibly affecting CMC campus decision-making processes about factors that elicited faculty engagement in LOA. Additionally, the lack of

representativeness of minority respondents in the Race/Ethnicity category was likely due to the CMC organizational changes presented in the Pilot Population section above. It is relevant to note, however, that the Campus 1 Dean of Instruction position was vacant at the time of survey administration, but was since filled with a Black male, increasing the representative proportion of African American/Black academic leaders to 14%.

Modifications to the Pilot EFEA instrument and procedures.

After discussing administrative procedures with the CCCS Provost and Vice Provost, and after reviewing the recommendations made by the CMC CEO's and the cognitive interviewees, it became evident to the researcher that combining the original two surveys into one instrument would lessen the burden to the CCCS Provost, Vice Provost, and campus Presidents, and provide ease of administration and data management. Therefore, the companion instrument for academic leaders was merged with the faculty instrument for the larger field study, allowing participants to select their appropriate group upon entry into the survey. The CCCS Provost recommended that she send a preliminary letter to the Presidents introducing the researcher, endorsing the study, and asking for their assistance in distributing one survey via email to both faculty and academic leaders at their campus. The researcher agreed to then follow-up with the Presidents one week later via email with the instructions letter and active link to the survey, followed by three subsequent email reminders each week. The 'Skip Logic' function in *SurveyMonkey* webhost was used to electronically direct participants to the appropriate survey instrument.

Both CMC CEO's and four out of six cognitive interviewees provided feedback that the introductory email was unnecessarily long and that some participants may not

read the entire content. This alerted the researcher to the possibility that informed consent may not be fully achieved through this method, and therefore transferred the informed consent protocol from the email to the initial page of the survey wherein participants in the field study would provide their consent to participate by selecting the option, "By beginning this survey, you acknowledge that you have read this information and agree to participate in this research". The University of Denver's Office of Research and Sponsored Programs was contacted to determine if an additional IRB review/approval was necessary to make this amendment. The researcher was informed that since the content of the informed consent protocol did not change, the placement change would not need additional approval (see Appendix U). Modifications to the general survey instrument are presented in Table 13.

In sum, findings from the pilot administration of the EFEA instrument indicated estimates of strong internal consistency reliability for the total EFEA instrument and all three subscales, and acceptable estimates of convergent validity for the EFEA total instrument and all but the EFFECT subscales. Based on the preservation of proposed construct meaning and depth, as well as strong results obtained from the item analysis, internal consistency, content validity, and acceptable results from the construct validity and content analysis, the revised EFEA scale and subscales were used in the field administration (see Appendix V).

Table 13
Modifications to Pilot EFEA Survey Instrument

Previous/pilot	Modifications/field
Response rates	
30% Acceptable, 40% Good, 50% Very Good	No benchmark
No incentive	Added incentive to increase interest and response rates - new *Kindle Fire HD* tablet worth $200
Variables	
29 ordinal, ranked variables	31 interval, scaled variables
Construct validity estimate test	Added 1 ISSA total scale score, 1 EFEA total scale score, 3 ISSA subscale scores, 3 EFEA subscale scores
4 EG variables - qualitative, open-ended	Transformed to 10-12 categorical, nominal quantitative variables with 'Select all that Apply' response category
Procedures	
CCCS Provost send faculty survey and 3 reminders to college Presidents who send to faculty; CCCS Vice Provost send AL survey and 3 reminders to VPI's, VPI's send survey to academic leaders	CCCS Provost sends introductory letter with endorsement to Presidents asking them to send 1 survey to faculty and academic leaders; researcher send survey and 3 reminders to Presidents
Instrument development	
Two surveys	One survey - skip logic used
Scaled items set-up with multiple response option	Scaled items amended to only one response option/radial buttons
"Other" response choice included in Position Type, Current Education Level in demographic section	Removed "Other" response choices
CCCOnline Faculty and academic leaders excluded due to duplicate concern	CCCOnline included and added as a separate, distinct, primary campus location
Primary CMC location	CCCS Campus
Informed consent and survey instructions in cover letter email	Moved to first page in survey - consent is given by electing to enter the survey

Field Study Results

Missing values.

Missing values analyses were performed for all four parts of the survey and for each demographic category to determine how many data were missing, the kind of data

that were missing (single items or a full scale), the number of respondents who returned a usable (completed) survey, and what decisions were necessary to ensure accurate statistical analyses. Missing data for scaled variables were defined as: 1) Missing Completely at Random (MCAR), 2) Missing at Random (MAR), and 3) Missing Not at Random (MNAR) (Dillman, Eltinge, Groves, & Little, 2002). The researcher initially determined that replacement of missing values on the scaled items was appropriate to increase the sample size in order to produce a more robust sample with a greater likelihood of variability, decrease the likelihood of standard errors, and to enhance correlations between items, variables, and scales (Dillman, Eltinge, Groves, & Little, 2002). Thus, missing values on items were initially replaced with the series mean of the scale or subscale if the participant responded to at least 60% of the scale's items after the missing values were assessed and the units removed (Sweet & Grace-Martin, 2011).

After computing reliability and validity estimates, however, results reflected very poor associations and non-significant coefficients for convergent validity, conflicting with the results of the pilot estimates and strong reliability coefficients. The researcher determined that the use of mean replacements may have reduced variable variance, negatively impacting the correlations between items, variables, and scales, and thus statistical significance (Dillman, Eltinge, Groves, & Little, 2002; Furr & Bacharach, 2008). Reliability and validity estimates were re-calculated using a listwise default. These estimates (reported below) were more reflective of pilot study results and achieved similar significance levels as pilot data; therefore, the original raw data without mean substitution were used for all inferential statistical analyses.

Overall, missing values were considered Missing at Random (MAR) (Dillman, Eltinge, Groves, & Little, 2002), reflecting a random pattern across variables that did not present problems with scores on the variables or instrument and therefore the interpretation of results. Demographic variable *Present Age* had the most missing values for both faculty and academic leaders at 12%, with *Years of Experience in Learning Outcomes Assessment (LOA)* in close second at 11%, suggesting that both groups either did not want to disclose or felt the question was irrelevant (Dillman, 2007). The EFEA total scale reflected that 41% of respondents either skipped an item, a section, or the full instrument, while the FUNCTION, INFLUENCE, and EFFECT subscales reflected lower percentages of missing values at 32%, 35%, and 30%, respectively.

Respondents to the ISSA total scale demonstrated a similar pattern as the EFEA scale with a 47% missing value rate and 37%, 41%, and 35% for the three subscales, respectively. Interestingly, the EFFECT subscale had the fewest missing values (or the most responses) on both instruments, yet was the last segment on both scales, indicating that respondents skipped items on the longer subscales but elected to respond to the shorter ones. This trend supports Dillman (2007) and Sue and Ritter's (2007) premises that reading difficulty level and item length can influence item response, and that most participants will elect the shortest, most expedient way to complete items. Missing values for *Faculty Engagement Practices* indicated at least 387 out of 578 faculty (or 67%) responded to this section. Overall, there were more full-time (68%) than part-time faculty (32%) that responded to this section, suggesting that the responses reflected greater depth of knowledge and experience about the impact of learning outcomes assessment practices

on student learning and effective teaching (Cohen & Brawer, 2008; Keeling & Hersh, 2011).

Demographic variables.

Frequencies were computed for the demographic variables, reflecting $n = 682$ total responses, which included 602 faculty and 80 academic leaders (see Table 14). Overall, faculty had lower rates of missing values than academic leaders. Results indicate that the category *Age* had the most missing values in total (12%) while category *Primary Campus Location* had the least (5%). The category *Age* also had the highest percentage of missing values for academic leaders (23%), and shared the highest percentage of missing values with *Years of Experience in LOA* for faculty (10%). Categories *Position Type, Campus, Education Level, Gender, and Race/Ethnicity* demonstrated consistently low percentages of missing values for academic leaders and faculty and for both groups combined.

Table 14
Missing Values Frequencies for Demographic Variables

Missing data (Part I. Demographics)	Complete	Missing	Totals	Missing %
Academic Leaders				
Position type	64	16	80	20%
Campus	70	10	80	13%
Education level	70	10	80	13%
Years of exp w/LOA	66	14	80	18%
Age	62	18	80	23%
Gender	69	11	80	14%
Race/ethnicity	70	10	80	13%
Faculty				
Position type	578	24	602	4%
Campus	576	26	602	4%
Education level	573	29	602	5%
Years of exp w/LOA	541	61	602	10%
Age	541	61	602	10%
Gender	572	30	602	5%
Race/ethnicity	573	29	602	5%
Total				
Position type	642	40	682	6%
Campus	646	36	682	5%
Education level	643	39	682	6%
Years of exp w/LOA	607	75	682	11%
Age	603	79	682	12%
Gender	641	41	682	6%
Race/ethnicity	643	39	682	6%

EFEA scale variables.

Results of the frequencies analysis reflected that the EFEA total scale had the highest percentage of missing values (41%), and the EFFECT scale had the lowest percentage (30%) (see Table 15). Results of the missing values analysis indicated that the

missing values for the EFEA total scale and the three subscales varied randomly across different variables and items, reflecting an MAR pattern (Dillman, Eltinge, Groves, & Little, 2002). Missing units (full scales) on the EFEA scale were removed from the analysis. For the total EFEA scale, $n = 403$; there were 279 missing values that included 173 missing units (full scales) and 106 incomplete cases (items). The FUNCTION subscale had 219 missing values with 173 missing units and 46 incomplete cases, the INFLUENCE subscale had 239 missing values with 173 missing units and 31 incomplete cases, and the EFFECT subscale had 202 missing values with 173 missing units and 29 incomplete cases. As a result, 173 units were removed from the EFEA total scale and 106 cases were considered to have missing values.

Table 15
Missing Values Frequencies for EFEA Scale Variables

Missing data (Part II. EFEA scale)	Complete	Missing	Totals	Missing %
Total scale	403	279	682	41%
Function	463	219	682	32%
Influence	443	239	682	35%
Effect	480	202	682	30%

ISSA scale variables.

Results of the frequencies analysis reflected that, similar to the EFEA scale, the ISSA total scale had the highest percentage of missing values (318), and the EFFECT subscale had the lowest percentage (239) (see Table 16). The results of the missing values analysis also indicated that the missing values for the ISSA total scale varied randomly across different variables, and reflected an MAR pattern (Dillman, Eltinge, Groves, & Little, 2002). For the ISSA scale, $n = 364$; there were 318 missing values that

included 217 missing units (full scales) and 101 incomplete cases (items). The FUNCTION subscale had 251 missing values with 217 missing units and 34 incomplete cases, the INFLUENCE subscale had 283 missing values with 217 missing units and 45 incomplete cases, and the EFFECT subscale had 239 missing values with 217 missing units and 22 incomplete cases. Subsequently, 217 units were removed from the ISSA total scale and 101 cases were considered to have missing values.

Table 16
Missing Values Frequencies for ISSA Scale Variables

Missing data (Part IV. ISSA scale)	Complete	Missing	Totals	Missing %
Total Scale	364	318	682	47%
Function	431	251	682	37%
Influence	399	283	682	41%
Effect	443	239	682	35%

Faculty engagement practices.

As the four items in this section utilized a multiple response format (select all that apply), missing values were considered to indicate that a faculty member did *not* apply the method in their practice; e.g., 88% of faculty respondents did not select *Capstone Experiences* as a learning outcomes assessment practice they employ, while 12% indicated they did use this method (Krippendorff, 2013). Missing values for the Faculty Engagement Practices variables reflected a highly disparate pattern that included a range of missing items from the lowest rate of 35% for *Effective Teaching* as a reason for engaging in outcomes assessment to the highest rate of 93% for *Placement Rates* as a method to inform their assessment practices (see Appendix W).

Response rates.

The *n,* or total number of respondents who responded to the survey by week and campus, was 682, reflecting an overall response rate of 13% (see Table 17). General response rates for both groups, academic leaders (82%) and faculty (11%), by week and campus are presented in Appendix X. A statistical comparison of the EFEA scaled variables by response wave is presented in Appendix Y. The following questions were constructed to examine non-response bias and representativeness: (1) Do responses to each scale vary significantly across email waves? And (2) Do nonrespondents differ significantly from respondents by demographic characteristics Gender and Race/Ethnicity?

Table 17
General Response Rates by CCCS Campus

Wave analysis	Total population								
Campus	N	Week 1	Week 2	Week 3	Week 4	Week 5	Total	Inst. rate	Total rate
ACC	497	27	27	11	2	11	78	16%	1%
CCCOnline	173	96	11	6	1	1	115	66%	2%
CNCC	95	9	0	4	0	0	13	14%	0%
CCA	437	2	27	13	0	2	44	10%	1%
CCD	564	2	12	23	2	3	42	7%	1%
FRCC	1166	6	107	41	6	1	161	14%	3%
LCC	60	0	3	2	0	0	5	8%	0%
MCC	172	8	1	2	1	0	12	7%	0%
NJC	95	25	3	5	0	3	36	38%	1%
OJC	86	1	8	6	1	10	26	30%	0%
PPCC	866	4	0	17	3	3	27	3%	1%
PCC	438	1	0	12	0	1	14	3%	0%
RRCC	539	1	15	8	2	2	28	5%	1%
TSJC	163	9	30	5	0	0	44	27%	1%
Missing	0	4	14	17	2	0	37	N/A	1%
Subtotal	5351	195	258	172	20	37	682	N/A	13%
Unknown	125								
Total	5226	195	258	172	20	37	682	N/A	13%

While the overall survey response rate of 13% appeared low in comparison to established mail, telephone, and email survey response rate benchmarks at 25% and higher (Hamilton, 2004; Sue & Ritter, 2007), findings were consistent with Dillman's (2007) claim there is no acceptable return rate for web- or Internet-based surveys to date. Additionally, the rate was comparable to the U.S. Census minimum rate of 5% for Internet-based surveys (Fowler, 2009), thus the response rate was considered acceptable.

The researcher adopted multiple strategies for increasing response rates, including using follow-up invitations, reminder messages, material incentives, social involvement, consideration of workload and schedules, thank-you notes, and use of pleasant, positive language and tone (Cook, Heath, & Thompson, 2000; Dillman, 2007; Kittleson, 1997; Sue & Ritter, 2007).

Participant comments throughout the survey (inserted in various *Other* response category options in research question 4) indicated non-participation could have been influenced by a number of factors including the volume of web-based surveys sent to the same groups around the same time, the often controversial topic of the survey, an authoritative and/or indifferent impression from the institutional President, and the lack of available time on behalf of part-time faculty with more than one job and/or less affiliation with CCCS or the institution. Response rates reflected that most responses were received in weeks 1 and 2, supporting Dillman's (2007) premise that if respondents are to participate, they make this decision early after receipt.

Wave analysis.

A one-way analysis of variance (ANOVA) was performed to determine whether or not statistically significant differences existed across all 5 weeks or four waves on the four scales (Morgan, Leech, Gloeckner, & Barrett, 2011) (see Table 18). Results for the EFEA total scale reflected there were no significant differences among response waves, $F(4,396) = .863$, $p = .486$. There were no significant differences between response rates on the FUNCTION scale, $F(4,452) = .708$, $p = .587$. There were also no significant differences between response waves for the INFLUENCE scale, $F(4,431) = 1.98$, $p = .097$ or the EFFECT scale, $F(4,471) = 2.36$, $p = .053$. Findings suggested there were no

significant differences between or among weeks by campus or locale, reflecting that the overall sample was representative of the larger population for both groups on the total scale and three subscales.

Table 18
One-Way Analysis of Variance Summary Comparing Response Waves on EFEA Total, Function, Influence, and Effect Scales

Weeks 1-5					
Scale/variables	*df*	SS	MS	*F*	*p*
Total scale (31 items)					
Between Groups	4	817.53	204.38	.86	.486
Within Groups	396	93735.48	236.71		
Total	400	94553.01			
IV1 FUNCTION (13 items)					
Between Groups	4	155.99	39	.71	.587
Within Groups	452	24884.57	55.05		
Total	456	25040.56			
IV2 INFLUENCE (13 items)					
Between Groups	4	465.36	116.34	1.98	.097
Within Groups	431	25323.62	58.76		
Total	435	25788.98			
DV1 EFFECT (5 items)					
Between Groups	4	87.3	21.83	2.36	.053
Within Groups	471	4362.27	9.26		
Total	475	4449.57			

Response bias and representativeness.

A chi-square analysis was used to compare the demographic characteristics Gender and Race/Ethnicity of the respondents versus the nonrespondents to assess representativeness (Howell, 2008) (see Table 19). An alpha level of $p \leq .05$ was used for each test. Results for academic leaders show that respondents and nonrespondents did not

differ significantly on Gender ($\chi^2 = 3.04$, $df = 1$, $N = 96$, $p = .081$), indicating representativeness for this group. Results for faculty reflect a significant difference between respondents and nonrespondents on Gender ($\chi^2 = 30.94$, $df = 1$, $N = 5{,}130$, $p \leq .001$), thus representativeness was not evident for this group. Results for the total population indicate that respondents and nonrespondents differed significantly ($\chi^2 = 38.85$, $df = 1$, $N = 5{,}226$, $p \leq .001$), thus representativeness on Gender was not evident for the total population.

Table 19
Response Bias/Representativeness by Gender

Respond		Gender			
	n	Female	Male	*X2*	*p*
Response bias/AL					
Yes	69	51	18	3.04	.081
No	27	15	12		
Totals	96	66	30		
Response bias/faculty					
Yes	568	378	190	30.94	≤.001
No	4562	2475	2087		
Totals	5130	2853	2277		
Response bias/total pop					
Yes	637	429	208	38.85	≤.001
No	4589	2490	2099		
Totals	5226	2919	2307		

Results for academic leaders on Race/Ethnicity indicate representativeness was not evident ($\chi^2 = 12.02$, $df = 4$, $N = 96$, $p = .017$); however, representativeness was evident for faculty on Race/Ethnicity ($\chi^2 = .28$, $df = 4$, $N = 5{,}130$, $p = .991$) and for the total population ($\chi^2 = .49$, $df = 4$, $N = 5{,}226$, $p = .974$) (see Table 20).

Table 20
Response Bias/Representativeness by Race/Ethnicity

Race/Ethnicity	*n*	Respond		X_2	*P*
		Yes	No		
Response Bias/AL					
American Indian/Alaskan Native	1	1	0	12.02	.017
Asian/Pacific Islander	6	2	4		
Black/African American	7	3	4		
Hispanic American	9	5	4		
White/Caucasian	73	59	14		
Totals	96	70	26		
Response Bias/Faculty					
American Indian/Alaskan Native	37	5	32	.28	.991
Asian/Pacific Islander	146	17	129		
Black/African American	136	15	121		
Hispanic American	283	31	252		
White/Caucasian	4528	501	4027		
Totals	5130	569	4561		
Response Bias/Total Pop					
American Indian/Alaskan Native	38	6	32	.49	.974
Asian/Pacific Islander	152	19	133		
Black/African American	143	18	125		
Hispanic American	292	36	256		
White/Caucasian	4601	560	4041		
Totals	5226	639	4587		

The results for response bias or representativeness for each group by Gender and Race/Ethnicity, showed that the percentage of academic leader respondents (82%) outweighed the percentage of faculty respondents (11%) by an 8:1 ratio. For academic leaders, there were no statistically significant differences between respondents and nonrespondents on Gender, reflecting representativeness was achieved. Statistically significant differences between respondents and nonrespondents did emerge on Race/Ethnicity, reflecting that representativeness was not achieved for academic leaders. For faculty, there were statistically significant differences between respondents and nonrespondents on Gender, reflecting representativeness was not achieved. For faculty on Race/Ethnicity, there were no statistically significant differences between respondents and nonrespondents, reflecting representativeness was achieved. For the total population, there were statistically significant differences between respondents and nonrespondents on Gender, reflecting representativeness was not achieved. For the total population on Race/Ethnicity, there were no statistically significant differences between respondents and nonrespondents, reflecting representativeness was achieved for this variable.

Major findings suggested that, overall, respondents in this survey were representative of the nonrespondents by Race/Ethnicity, but not by Gender, specifically males. This effect may have occurred for several reasons: (1) males will participate more often in a survey if they are personally or professionally interested in the topic, whereas females are more likely to engage if they perceive social benefit or helping behaviors (Dillman, 2007; Sue & Ritter, 2007), and (2) males tend to respond to web-based surveys more often than females for reasons related to job performance and expectation (Kwak & Radler, 2002). While Fowler (2009) asserts that a lack of information exists to predict

when, and how much, nonresponse will or will not affect survey estimates, Smith (2008) claims that, "Because university faculty members are roughly homogeneous with regard to Internet access (citing Fleck & McQueen, 1999), geographic location, occupation, and to a lesser extent income," it is assumed that a restricted sampling frame will reduce the effects of non-response bias. This study used a restricted sampling frame, suggesting the non-response bias encountered for nonrespondents on Gender may not have a direct impact on the study results.

Estimates of reliability.

Estimates of reliability were calculated using scales that deleted missing values on the EFEA and ISSA scale and subscales.

Internal consistency.

A Cronbach's coefficient alpha (α) (DeVellis, 2003) was calculated for the two proposed independent variables (13 items on IV1: FUNCTION and 13 items on IV2: INFLUENCE), and the dependent variable (5 items on DV: EFFECT) to provide an estimate of internal consistency for CCCS faculty and academic leaders (n = 403). The total EFEA and ISSA measures and the three subscales were assessed separately (see Table 21). Cronbach's alpha for the EFEA total scale and three subscales reflected strong internal consistency as evident in high alpha coefficients: (1) α_{EFEA} scale = .93, (2) $\alpha_{FUNCTION}$ = .91, (3) $\alpha_{INFLUENCE}$ = .91, and (4) α_{EFFECT} = .87. Results for the ISSA total scale and the INFLUENCE and EFFECT also reflected strong internal consistency as evident in high alpha coefficients, while the FUNCTION subscale reflected a slightly lower alpha: (1) α_{EFEA} scale = .92, (2) $\alpha_{FUNCTION}$ = .83, (3) $\alpha_{INFLUENCE}$ = .91, and (4) α_{EFFECT} = .90.

Table 21
EFEA and ISSA Scales Reliability Coefficients

Reliability coefficients			
EFEA	α	ISSA	α
Total Scale	.93	Total Scale	.92
Function Subscale	.91	Function Subscale	.83
Influence Subscale	.91	Influence Subscale	.91
Effect Subscale	.87	Effect Subscale	.90

Item analysis.

An item analysis was performed on the EFEA scales to assess the contribution of the items to each scale and to identify non-performing items to further assess how the items held together in this sample (Field, 2005). An item analysis was not performed on the ISSA items, as the performance of the ISSA measures was not under investigation. Examination of the item analysis results, or item statistics, included item means, item variance, and item discrimination (or item-scale correlation), that demonstrated the association between individual items and overall scale performance (DeVellis, 2003). Items were assessed using the following criteria: (1) item means closer to the center of the scale (< 1.5 or > 3.5 identified as problems), (2) higher versus lower standard deviations or variance, (3) positive inter-item correlations, (4) higher versus lower item-scale correlations (>.30) (Field, 2005), and (5) items that maximized Cronbach's alpha for minimal scale length (DeVellis, 2003). Items that demonstrated poor or low performance on any of the 5 evaluation criteria were included in a performance matrix to evaluate their contribution or relevance to the hypothetical latent constructs and to the scale or subscale. Items that performed well in all 5 categories were not included in the matrix.

Results for the EFEA Total scale.

Reliability statistics for the EFEA total scale were first evaluated. Table 22 presents the performance matrix of items that surfaced as poor performers in the overall EFEA scale analysis.

As indicated, Cronbach's alpha for the EFEA total scale was .93, reflecting strong internal consistency among items. Item statistics reveal an overall mean of 2.91, reflecting average scores somewhat higher than the center of the scale (2.5). Overall item variances had a mean of .69 with a range of .50 – 1.11. Four individual item means, F10 (3.24), E28 (3.39), E29 (3.32), and E30 (3.34) reflected values close to the high end of the poor performance criteria of > 3.5, thus were included in the performance matrix. One individual item mean reflected a value close to the low end of the poor performance criteria of < 1.5, (F12 at 1.84), and was included in the performance matrix.

Table 22
Summary Item Analysis - EFEA Scale Performance Matrix

	Decision criteria					
	Item	Cronbach's alpha	Item statistics	Inter-item correlation	Item-scale correlation	Cronbach's alpha if item deleted
Scale		.93	M=2.91, V=.69	Negative inter-item correlations		
EFEA	F9	.93	M=3.11, V=.81	1	.44	.93
	F10	.93	M=3.24, V=.79	0	.51	.93
	F12	.93	M=1.84, V=.83	0	.50	.93
	I25	.93	M=2.96, V=1.05	1	.35	.93
	E28	.93	M=3.39, V=.71	0	.41	.93
	E29	.93	M=3.32, V=.73	0	.40	.93
	E30	.93	M=3.34, V=.72	0	.46	.93

A total of 961 correlations were reviewed, reflecting an average inter-item correlation of .39. Results of the inter-item correlation reflected one negative correlation between items F9 and I25 (-.001), thus both items were included in the matrix. Third, item-scale statistics were evaluated including the scale mean if items were deleted, scale variance if items were deleted, corrected item-scale correlations of .30 or greater (Field, 2005), and Cronbach's alpha if items were deleted. Item-scale correlations reflected that all items achieved >.30, and alpha would have either decreased or remained the same if any items were removed except I25 wherein alpha would have increased by .001. Therefore, no items were removed from the analysis.

Results for the FUNCTION scale.

The procedures used for the EFEA total scale analysis were employed for all three subscales. The results of the poorest performing items for the FUNCTION subscale are presented in Table 23. Cronbach's alpha for the FUNCTION subscale was .91, reflecting good internal consistency among items. Item statistics revealed an overall mean of 2.76, reflecting average scores above the center of the scale (2.5). Overall item variances had a mean of .69 with a range of .55 to .83, reflecting equivalent variance with the EFEA total scale. Two individual item means reflected relatively poor performance, F10, and F12, and were included in the performance matrix. While F9 reflected a negative correlation with I25 on the total scale, it did not produce any negative correlations with any other FUNCTION items, thus was not placed in the performance matrix.

Table 23
Summary Item Analysis - FUNCTION Scale Performance Matrix

	Decision criteria					
	Item	Cronbach's alpha	Item statistics	Inter-item correlation	Item-scale correlation	Cronbach's alpha if item deleted
Scale		.91	M=2.76, V=.69	No. of negative inter-item correlations		
FUNCTION	F10	.91	M=3.26, V=.79	0	.62	.90
	F12	.91	M=1.86, V=.83	0	.54	.91

Results of the inter-item correlation reflected no negative correlations with 169 correlations reviewed, reflecting an average inter-item correlation of .44. Item-scale statistics were evaluated including the scale mean if items were deleted, scale variance if

items were deleted, corrected item-scale correlations of .30 or greater (Field, 2005), and Cronbach's alpha if items were deleted. Item-scale correlations reflected that both items F10 and F12 achieved coefficients >.30, and alpha would have decreased if either item was removed from the analysis. Therefore, no items were removed from the analysis.

Results for the INFLUENCE scale.

Cronbach's alpha for the INFLUENCE subscale was .91, reflecting good internal consistency among items. There were no items on the INFLUENCE subscale included in the performance matrix, as all items either met or exceeded the performance criteria. Item statistics revealed an overall mean of 2.96, reflecting average scores above the center of the scale (2.5). Overall item variance had a mean of .73 with a range of .58 - 1.09, reflecting slightly higher variance than the EFEA total scale and the FUNCTION subscale. All individual item means reflected good performance or values close to the center of the scale. Results of the inter-item correlation reflected no negative correlations with 169 correlations reviewed, reflecting an average inter-item correlation of .44. Item-scale statistics were evaluated including the scale mean if items were deleted, scale variance if items were deleted, corrected item-scale correlations of .30 or greater, and Cronbach's alpha if items were deleted. Item-scale correlations reflected that all items achieved coefficients >.30, and alpha would have decreased if any of the items were removed from the analysis.

Results for the EFFECT scale.

Cronbach's alpha for the EFFECT subscale was .87, reflecting good internal consistency among items. The results of the poorest performing items for the EFFECT subscale are presented in Table 24. Item statistics reveal an overall mean of 3.26 for the

EFFECT subscale, reflecting average scores considerably above the center of the rating scale (2.5). Overall item variance had a mean of .57 with a range of .52 - .62, reflecting lower variance than the EFEA total scale and the FUNCTION and INFLUENCE subscales. Three individual item means, E28 (3.39), E29 (3.31), and E30 (3.32), reflected values close to the high end of the poor performance criteria of > 3.5, thus were included in the performance matrix. Results of the inter-item correlation reflected no negative correlations between items with 25 correlations reviewed, reflecting an average inter-item correlation of .52. Item-scale statistics were again evaluated. Item-scale correlations reflected that all items achieved coefficients >.30; however, the scale mean, scale variance, and alpha would have decreased substantially if any of the items were removed from the analysis.

Table 24
Summary Item Analysis - EFFECT Scale Performance Matrix

	Decision criteria					
	Item	Cronbach's alpha	Item statistics	Inter-item correlation	Item-scale correlation	Cronbach's alpha if item deleted
Scale		.87	M=3.26, V=.57	No. of negative inter-item correlations		
EFFECT	E28	.87	M=3.39, V=.72	0	.74	.83
	E29	.87	M=3.31, V=.75	0	.78	.82
	E30	.87	M=3.32, V=.74	0	.73	.84

Findings demonstrated that items were consistent and written appropriately, related well to each other, systematic bias was not introduced by the scales, reflecting

strong internal consistency (DeVellis, 2003; Morgan, Leech, Gloeckner, & Barrett, 2011; Sue & Ritter, 2007). Since the ultimate score sought in items was a high correlation with the true score of the latent variable, alphas reflected high individual item reliabilities, and the items were intimately related to the latent variable(s). These results indicated, therefore, that the 31 items as a scale were highly related, the subscale items were highly related, the items within each scale were measuring the same construct(s), and the items provided strong internal consistency reliability. The slightly lower alpha coefficient for the EFFECT subscale (.87) may have been attributed to the lower number of items for EFFECT compared to the other two subscales (DeVellis, 2003; Furr & Bacharach, 2008).

Although item analysis indicated that eight items in the EFEA total scale demonstrated poor performance in one or more of the 5 evaluation criteria, the means, variance, and impact on Cronbach's alpha indicated all eight items posed minimal effect on any scale's reliability if removed; e.g., the maximum increase in alpha was .001 if item I12 was removed from the EFEA scale, .002 if F10 were removed from the FUNCTION subscale, and .006 if E27 were removed from the EFFECT subscale. Although the EFEA total scale had the highest alpha, the INFLUENCE subscale had the best overall performance with item means closest to the center of the scale, higher item variances, no negative inter-item correlations, and highest item-scale correlations.

While the total scale and the FUNCTION and INFLUENCE subscales reflected mid-range variance of .70, the variance for the EFFECT scale was lower at .55, indicating statements were likely easier to agree with and there was less diversity in participant responses. The 5 EFFECT items also had higher mean scores than items on the total scale or the other two subscales. These items were located at the end of the total scale,

indicating possible saturation of interest by respondents (Dillman, 2007). The subscale's location, however, represented the logical, sequential flow of the constructs under investigation, and was therefore not re-located after the pilot study evaluation. While the EFFECT subscale demonstrated the poorest performance overall with the lowest alpha, lowest item variance, and highest item means, this subscale had the fewest comments from cognitive interviews and content experts, and had the strongest item-scale correlations, indicating individual EFFECT items correlated substantially with the other EFFECT items.

Overall, item means, item variances, inter-item correlations, item-scale correlations, and internal consistency values reflected good overall performance for the EFEA total scale and the subscales. Acceptable inter-item correlations, robust inter-scale correlations (100% were >.30), and a lack of negative item-scale correlations suggested that the items measured the same, or highly similar, underlying or latent construct on each scale (DeVellis, 2003). The small number of negative inter-item correlations (one), minor changes from cognitive interview feedback, and the minor increases in alpha if any items were removed, led the researcher to determine the items as grouped were very good estimates of reliability. Additionally, EFEA reliability estimates corresponded to similar measures; e.g., the FSSE supplemental survey, $\alpha_{FSSE} = .85$ (Haywood, Shaw, Nelson-Laird, & Cole, 2011), and the ISSA instrument, $\alpha_{FUNCTION} = .86$, $\alpha_{INFLUENCE} = .92$, and $\alpha_{EFFECT} = .93$ (Peterson, Augustine, Einarson, & Vaughan, 1999).

Estimates of validity.

Construct validity.

Estimates of convergent validity were calculated for the EFEA and ISSA scale and subscales. In this study, 31 scaled variables were situated within hypothetical variables IV1: FUNCTION (13 indicators), IV2: INFLUENCE (13 indicators), and DV: EFFECT (5 indicators). Three theoretically similar constructs using summated rating scales were located and evaluated for their convergence to the three constructs developed in this study. Field study participants, both faculty and academic leaders, were asked to respond to the ISSA (Peterson, Augustine, Einarson, & Vaughn, 1999) items located at the end of the EFEA survey. Total scale score variables were transformed into standardized *z* scores for the EFEA and ISSA total scales and the three EFEA and ISSA subscales to enable interpretation across the different scales (Field, 2009; Sax, 1997).

Intercorrelations between the aggregate scores from the corresponding measures on the ISSA and the EFEA scores were calculated for construct validity using Pearson's *r* correlation coefficient (Field, 2005; Furr and Bacharach, 2008; Johnson & Christensen, 2008). Results of the intercorrelations were $r = .25$ for the EFEA/ISSA total scale, $r = .19$ for the FUNCTION subscales, and $r = .18$ for the INFLUENCE subscales (see Table 25). While the coefficients were considered low, they were statistically significant at the .01 level. The coefficient for the EFFECT subscales at $r = .06$ was not statistically significant, which was consistent with the Pilot data results for this subscale.

Table 25
EFEA and ISSA Validity Coefficients

Instrument	Validity coefficients			
	ISSA total scale	ISSA function subscale	ISSA influence subscale	ISSA effect subscale
EFEA Total Scale	.249**			
EFEA Function Subscale		.188**		
EFEA Influence Subscale			.180**	
EFEA Effect Subscale				.056

Note. **Correlation is significant at the 0.01 level.

Overall, findings reflected that the total EFEA instrument demonstrated evidence of sufficient content and construct validity. Content expert feedback from the pilot test reflected high inter-rater agreement regarding item equivalency to the operational definitions of the constructs, relatively few adaptations to items with respect to wording and meaning, and minor modifications to the overall instrument, reflecting evidence of content validity. While intercorrelation coefficients between the EFEA/ISSA scales appeared low (EFEA/ISSA total scale: $r = .25$, FUNCTION subscales: $r = .19$, INFLUENCE subscales: $r = .18$, and the EFFECT subscales: $r = .06$), all were statistically significant at the .01 level, except the EFFECT subscale which was consistent with Pilot data ($r = .17$).

Convergent or discriminant coefficients were not available for the 2009 FSSE supplemental survey, the 2009 CCFSSE, or the 1997 ISSA instrument; however, concurrent validity coefficients for the National Survey of Student Engagement (NSSE), which provides validity evidence for the FSSE and CCFSSE, reflected similar validity estimates to the EFEA EFFECT subscale for constructs related to Effectiveness; e.g., effect sizes for variables Student Academic Engagement at Associate degree awarding

institutions was $r = .04$ (Indiana University Center for Postsecondary Research, 2013). Therefore, the coefficients for the EFEA total scale and the FUNCTION and INFLUENCE subscales reflected that the Perceived Levels of Functioning and Perceived Levels of Influence constructs converged with other constructs reported to measure the same or similar constructs, and thus demonstrated evidence of construct validity. The EFFECT subscale coefficients demonstrated convergence to similar constructs on the BCSSE and NSSE measures, but were not statistically significant, indicating construct validity could not be confirmed for this subscale.

In order to discern plausible reasons for the low and non-significant coefficient between the EFFECT subscales, the researcher conducted a comprehensive inspection of the ISSA EFFECT construct, items and sub-items, rating scale response categories, and the literature base of the ISSA scale and subscales. The following conditions appeared to provide sufficient explanation for the poor outcome: (1) differences between the EFEA and ISSA rating scales; e.g., the EFEA rating scale measured the extent of a participant's belief or attitude about the construct, whereas the ISSA rating scale measured whether participants had monitored and/or experienced impacts of the constructs; (2) differences among the ISSA subscale rating response categories; e.g., the response categories were not consistent across the three subscales, included a 'Not monitored, do not know' option, and contained compound wording, possibly creating confusion among respondents; (3) differences in the target population; e.g., ISSA items were administered to chief academic administrators (CAO's) at two-year associate of arts institutions, thus information about faculty participation was unknown; and (4) the intent of the constructs being measured; e.g., the ISSA EFFECT construct attempted to measure the impact or effect of learning

outcomes assessment on institutional indicators of success, whereas the EFEA EFFECT construct attempted to measure whether or not faculty and academic leaders perceived if the 5 effectiveness indicators affected greater faculty engagement with assessment.

Inclusion of the 'Not monitored, do not know' response option for ISSA EFFECT items merits further discussion, as results reflected that 38% of the field study respondents selected this option. Krosnick, et al. (2002) states that 'Not applicable' and/or 'Don't know' response choices often affect data quality and accuracy of findings, and can result in "attitude reduction" (p. 372), possibly precluding measurement of meaningful opinions. This response category was also the first option available on the EFFECT subscale, wherein DeVellis (2003) claims that response position can influence response patterns, and negate true differences of opinion. Thus, it is possible that the inclusion and position of the 'Not monitored, do not know' option influenced response patterns in a negative manner. Results of the PFA also indicated that the measure behaved the way the underlying constructs purported it should behave, further reflecting construct validity.

Research Questions

Research question 1.

1. What are CCCS faculty and academic leaders' perceptions about institutional conditions that presumably elicit effective faculty engagement with assessment as represented by the following constructs:
    a. Perceived Levels of Functioning?
    b. Perceived Levels of Influence?
    c. Perceived Levels of Effectiveness?

An exploratory factor analysis (EFA) (Field, 2008; Tabachnick & Fidell, 2007) was first used to identify potential constructs underlying the 31 items on the EFEA scale and subscales. Descriptive statistics were then calculated to develop an initial depiction of faculty and academic leaders' perceptions on the two independent variables and one dependent variable.

Exploratory factor analysis.

Latent constructs were pursued through an exploratory factor analysis (EFA), specifically, principal factors analysis (PFA) (Field, 2009; Stevens, 2002; Tabachnick & Fidell, 2007). Factorability was first assessed to determine if the correlation matrix was suitable for factoring. This was achieved through a Kaiser-Meyer-Olkin (KMO) test of sampling adequacy to determine the partial correlations among variables. A coefficient of $\geq .60$ was considered adequate for this test (Field, 2009). The KMO measure verified the sampling adequacy for the analysis, KMO = .92, indicating the sample was robust to perform factor analysis. Additionally, Bartlett's test of sphericity was performed. A significance level of $p \leq .05$ was employed. Bartlett's test of sphericity, χ^2 (465) = 6899.11, $p \leq .001$ reflected statistical significance, indicating the correlations between items were sufficiently large for PFA.

An unrotated PFA was conducted for factor extraction to provide a summary of the EFEA total scale or 31 items on potential factors (see Table 26). The correlation matrix, or *R*-matrix, was examined for multi-collinearity and no coefficients > .90 were present (Stevens, 2002), thus no items were considered for removal. To determine the number of factors present, four measures were considered. First, the scree plot suggested there were four possible latent factors underlying the items as witnessed by four points

lying above the elbow of the factor number line (Field, 2009; Tabachnick & Fidell, 2007). Second, initial eigenvalues suggested there were 5 potential factors with eigenvalues ≥ 1.0; however, after examining the correlations using Stevens' (2002) guideline that a meaningful correlation is usually .40 or higher, the factor loading matrix showed no variables with loadings higher than .36 on Factors 4 and 5.

Table 26
EFEA Total Scale Rotated Principal Factor Analysis

Summary of PFA results for the EFEA total scale (n = 403)			
	Rotated factor loadings		
	Conditions present and functioning	Conditions influence faculty engagement	Effectiveness indicators are achieved
F4. Collaborative opportunities **provided?**	.76		
F3. Opportunities to gain experience or practice **provided?**	.74		
F6. Resources **provided**; e.g., release time, staff, funding?	.73		
F2. Faculty development opportunities **provided?**	.71		
F13. Training in data collection, data management, or data use **provided?**	.69		
F1. Faculty values and beliefs **considered or solicited?**	.66		
F5. **Encouraged** to work with discipline peers?	.65		
F10. Top administrative leaders **support** learning outcomes assessment?	.63		
F8. Assessment practices **established** for student learning?	.63		
F7. Assessment **incorporated** into institutional policies?	.59		
F12. Rewards or incentives **provided**; e.g., stipends or awards?	.57		
F9. **Established** for institutional accountability?	.46		
F11. Students **encouraged** to participate in assessment?	.45		
I19. Release time, staff, or funding **increase** faculty engagement?		.73	
I26. Training in data mgt. or use **increases** faculty engagement?		.66	
I25. Incentives such as stipends **increase** faculty engagement?		.66	
I24. Student involvement **increases** faculty engagement?		.65	
I18. Working with discipline peers **increases** faculty engagement?		.65	

I20. Incorporating assessment into institutional policies **increase** faculty engagement?		.64	
I17. Opportunities to collaborate **increase** faculty engagement?		.62	
I21. Assessment for student learning **increase** faculty engagement?		.60	
I23. Support of top administrative leaders **increase** faculty engagement?		.58	
I16. Practice with assessment **increase** faculty engagement?		.57	
I22. Assessment for institutional accountability **increase** faculty engagement?		.55	
I15. Faculty development opportunities **increase** faculty engagement?		.54	
E29. Student learning **improves** when faculty engage in outcomes assessment?			.88
E28. Teaching **improves** when faculty engage in learning outcomes assessment?			.84
E30. Learner-centered culture is **established** when faculty engage in learning outcomes assessment?			.75
E31. Accountability for institutional goals is **established** when faculty engage in learning outcomes assessment?			.67
E27. Faculty satisfaction with institutional assessment **improves** when faculty engage in learning outcomes assessment?			.50
I14. Faculty engagement **increases** when faculty beliefs and values are considered?		.44	
Eigenvalues for rotated solution	6.03	5.45	3.23
Factor scores	.65	.56	.85

Third, the initial variance explained analysis reflected that Factors 1, 2, and 3 accounted for 53.47% of the variance, surpassing Tabachnick and Fidell's (2007) benchmark of 30% for inclusion. Results from a parallel analysis indicated that only Factors 1, 2, and 3 had higher eigenvalues in the real dataset than in the simulated dataset; e.g., Factor 1 (actual) = 10.06 versus Factor 1 (simulated) = 1.67; Factor 2 (actual) = 3.16 versus Factor 2 (simulated) = 1.54; and Factor 3 (actual) = 2.09 versus

Factor 3 (simulated) = 1.49. All other eigenvalues that emerged in the real dataset were less than the eigenvalues from the simulated data. Finally, an orthogonal rotation method (varimax) was used to identify which items loaded on factors. The coefficients were sorted greatest to least while suppressing coefficients under .40. The decision was made to retain three factors.

Findings indicated that the PFA factor loadings generated for the EFEA total scale reflected three distinct and "true" (DeVellis, 2003, p. 103) dimensions. Items that clustered on the same factors suggested that Factor 1 represented CCCS participant perceptions that the 12 institutional conditions proposed by the literature as necessary to elicit faculty engagement with assessment were present and functioning at their primary campus location. Further, Factor 2 represented CCCS participant perceptions that the 12 institutional conditions increased faculty engagement with assessment at their primary campus location. Factor 3 represented CCCS participant perceptions that the 5 indicators of effectiveness were outcomes of greater faculty engagement with assessment. Large (>.65) and concentrated loadings of the majority of items on a single factor exhibited there was a strong association between the items with the underlying construct, the items all pointed to the same phenomenon, and there was high agreement among and between faculty and academic leaders about construct meaning (DeVellis, 2003; Field, 2007).

Items with the highest loadings demonstrated the most similarity to the latent variable(s). The greatest loadings for the FUNCTION variable included: (1) collaborative opportunities, (2) opportunities to gain experience or practice with LOA, (3) resources, release time, staff, and/or funding, (4) faculty development opportunities, (5) training in data collection, use, and management, (6) faculty values and beliefs are considered, and

(7) faculty are encouraged to work with discipline peers. Together these loadings reflected that collaboration, training and development, experience with assessment, and institutional resources the primary drivers for the Perceived Levels of Functioning construct.

The greatest loadings for the INFLUENCE variable included: (1) resources, release time, and staff and/or funding, (2) training in data management collection and use, (3) incentives, stipends, and/or rewards, and (4) student involvement, reflecting that institutional resources, rewards and funding, and student participation in assessment were the primary drivers for the Perceived Levels of Influence construct. The greatest loadings for the EFFECT variable included: (1) student learning improves, (2) teaching improves, and (3) a learner-centered culture is established, and (4) accountability for institutional goals is established, reflecting that student learning, teaching, a learner-center culture, and accountability were the primary drivers for the Perceived Levels of Effectiveness construct.

Finally, the results of the PFA also demonstrated construct validity evidence for the EFEA measure, as evident through the internal structure of the measure; e.g., independent (uncorrelated) scales, and distinct factor loadings of items to a single factor (Furr & Bacharach, 2008). Nearly every item was strongly connected to the factor it was written to reflect and weakly connected to other factors. The cohesiveness of the constructs, therefore, suggests that the items produced or caused the item scores or latent associations (DeVellis, 2003). The researcher determined the labels *Functioning, Influence* and *Effectiveness* remained appropriate for the newly established constructs.

Descriptive statistics that emerged as particularly relevant from the field study included the differences in mean values for *Years of Experience in LOA* for CCCS academic leaders at 11.19 and faculty at 8.57, and for *Present Age* for academic leaders at 51.37 and faculty at 48.05, reflecting that faculty members had less experience in learning outcomes assessment and were younger in years than academic administrators. Pilot study results reflected a reversed trend, as CMC faculty had more years of experience with assessment and were older in years than academic administrators. Due to the researcher's experience with and knowledge of the CMC culture, this phenomena was considered standard, as the CMC academic leader population was highly transient and attracted younger, less experienced administrators in most positions, whereas faculty reflected a highly stable, consistent population.

The phenomenon of faculty moving into administrative roles as career advancement appears to be common in community college administration, providing a plausible explanation for the higher numbers in both demographic categories (Mellow & Heelan, 2008; Cohen & Brawer, 2008; Outcalt, 2002). Additionally, Mahon (2008) states that "Faculty make the leap to administration because they believe they can provide the support and sustenance the classroom needs to achieve success" (p. 1), reflecting that faculty move to administration for the benefit of students with the wish to lead and inspire academics, of which learning outcomes assessment is a key element. Outcomes suggested that CCCS academic leaders, often responsible for most decision-making processes regarding how resources for assessment practices and processes are allocated, may have had a deeper understanding than faculty about institutional conditions that

elicited greater engagement with LOA practices due to previous faculty experience and longevity in academic roles.

Descriptive statistics.

Frequency distributions of demographic data were reviewed to look for outliers, and to report the frequencies of variables. Demographic characteristics were used to depict each group's perception of the three constructs as represented by the total scale score. Mean scores on each subscale, along with the range, standard deviations, skewness, and kurtosis are presented by descriptive category for demographic variables in Appendices Z and AA.

Academic leaders.

A total of 51 academic leaders provided a valid (or complete) response to *Position Type*, with the greatest percentage from Program Directors at 45%. A total of 51 academic leaders also responded to *Primary CCCS Campus Location* with the highest percentage from TSJC at 18% and the lowest from LCC at 0%. *Education Levels* indicated that the majority of academic leaders held a Master's degree (55%), 29% held a Doctorate degree, and 16% held a Bachelor's, Associate's, or Licensure/specialty degree. *Years of Experience* ranged from 0 to 32 years, with the highest proportion of academic leaders reporting they had at least 5 years of experience (67%). The mean was 11.19 years of experience, with a standard deviation of 7.77, skewness of .71, and kurtosis of -0.05. *Present Age* of respondents reflected a range of 28 to 66 years. The mean age was 51.37 years, with a standard deviation of 9.3, skewness of -.54, and kurtosis of -.42. *Gender* of academic leader respondents included 36 females (72%) and 14 males (28%). *Race/Ethnicity* for academic leaders indicated that the majority of respondents were

White (86%), and 14% were American Indian/Alaskan Native, Asian/Pacific Islander, Hispanic American, or Black/African American.

Faculty.

A total of 391 faculty members provided a valid response to *Position Type*, including 219 full-time faculty (56%) and 172 part-time faculty (44%). A total of 391 faculty responded to *Primary CCCS Campus Location* with the highest percentage from FRCC (28%) and the lowest from LCC (.01%). *Education Levels* indicated that the majority of faculty held a Master's degree (69%), 15% held a Doctorate degree, and 16% held a Bachelor's, Associate's, or Licensure/specialty degree. *Years of Experience* ranged from 0 to 50 years, with the highest proportion of faculty reporting at least eight years of experience (48%). The mean for this group was 8.57 years of experience, with a standard deviation of 7.73, skewness of 1.51, and kurtosis of 3.0. *Present Age* of faculty respondents ranged from 26 to 79 years. The mean faculty age was 48.05 years, with a standard deviation of 11.15, skewness of -.15, and kurtosis of -.20. *Gender* of faculty respondents included 259 females (67%) and 128 males (33%). *Race/Ethnicity* for faculty indicated that the majority of respondents were White (90%), and 10% were American Indian/Alaskan Native, Asian/Pacific Islander, Black/African American, or Hispanic American.

Research question 2.

2. What relationships, if any, exist between and among the EFEA constructs with respect to academic status (faculty compared to academic leaders)? Do relationships among EFEA constructs differ for faculty compared to academic

leaders? Further, is there a statistically significant difference in faculty and academic leader views about these constructs?

Pearson correlations were computed to examine the intercorrelations of the variables for each group. Means and standard deviations were also computed. An alpha level of $p \leq .05$ was used for each test. Table 27 shows that all variable pairs were positively, significantly correlated with moderate coefficients. The strongest positive correlation for academic leaders was between the INFLUENCE and EFFECT variables, $r(51) = .59$, $p \leq .001$. FUNCTION was also positively correlated with INFLUENCE ($r = .49$), as was FUNCTION with EFFECT ($r = .46$). For faculty, the strongest positive correlation was between the FUNCTION and INFLUENCE variables, $r(349) = .48$, $p \leq .001$. FUNCTION and EFFECT were also positively correlated ($r = .27$), along with INFLUENCE and EFFECT ($r = .43$).

Table 27
Correlations for Academic Leaders and Faculty on EFEA Constructs

Variable	Mean	SD	Function	Influence	Effect
Academic leaders					
Function	36.35	8.18	.	.49*	.46*
Influence	40.71	7.56		.	.59*
Effect	16.67	3.01			.
Faculty					
Function	35.59	7.41	.	.48**	.27**
Influence	38.03	7.74		.	.43**
Effect	16.27	3.01			.

Note. *$p < .001$. **$p \leq .001$.

A test of significance between correlation coefficients was calculated to assess if there were statistically significant differences between correlation coefficients between FUNCTION and INFLUENCE for academic leaders ($r = .49$) and faculty ($r = .48$);

between FUNCTION and EFFECT for academic leaders (r = .46) and faculty (r = .27); and between INFLUENCE and EFFECT for academic leaders (r = .59) and faculty (r = .43). Results indicated there were no significant differences between FUNCTION and INFLUENCE for academic leaders and faculty (p = .94), between FUNCTION and EFFECT for academic leaders and faculty (p = .15), nor between INFLUENCE and EFFECT for academic leaders and faculty (p = .16).

Independent samples t tests (Howell, 2008) were calculated on the EFEA measures in order to investigate the statistical significance of differences (if any) between the means of two independent groups (see Table 28). An alpha level of $p \leq .05$ was used to declare statistical significance. Results of the t tests indicated that academic leader scores were not significantly different than faculty scores on the FUNCTION subscale (p = .96). Academic leaders were statistically significantly different than faculty on the INFLUENCE scale (p = .009). The mean score for academic leaders (M = 41.02) was higher than the mean score for faculty (M = 38.14). The difference between the two means was 2.87, with an effect size of d = .38, representing a medium effect (Field, 2008). Academic leaders were not significantly different than faculty on the EFFECT scale (p = .66).

Table 28
t-Test for Differences for Academic Leaders and Faculty on Three EFEA Variables

Subscale	*M*	*SD*	*t*	*df*	*p*	*d*
FUNCTION			0.06	458	.96	.006
Academic Leaders	35.79	8.04				
Faculty	35.84	7.35				
INFLUENCE			-2.61	438	.009**	.38
Academic Leaders	41.02	7.49				
Faculty	38.14	7.6				
EFFECT			-0.45	475	.66	.07
Academic Leaders	16.48	3.25				
Faculty	16.29	3.00				

Note. **p ≤ .001. Possible scale values for FUNCTION and INFLUENCE = 13-52; EFFECT = 5-20.

Findings reflected that correlation coefficients between variables were moderate, positive, and statistically significant, indicating that all variables were related to each other. The strongest association was between INFLUENCE and EFFECT for CCCS academic leaders (r = .59), while the weakest association was between FUNCTION and EFFECT for CCCS faculty (r = .27). Coefficients indicated a fair amount of agreement between groups (Furr & Bacharach, 2008). A test for significance of differences between correlations for the groups demonstrated there were no statistically significant differences between faculty and academic leaders on any of the variables, indicating equivalency in the strength of each correlation (Howell, 2008).

Results of the independent samples *t*-tests reflected that responses between the groups were not significantly different on the FUNCTION subscale (p = .96), indicating equivalence in agreement that the 12 institutional conditions were present and functioning at each campus. Responses between the groups were significantly different on the INFLUENCE subscale (p = .01), indicating levels of agreement were not in

alignment that the 12 institutional conditions increased faculty engagement with learning outcomes assessment. Responses between the groups were not significantly different on the EFFECT subscale ($p = .66$), indicating equivalent agreement that the 5 effectiveness indicators would result if faculty were engaged in learning outcomes assessment.

These results suggested that CCCS faculty and academic leaders perceived to a similar degree that their institutions provided the necessary elements as defined by the literature to engage in learning outcomes assessment, and that the 5 indicators of effectiveness (greater faculty satisfaction with institutional assessment, improved teaching, improved student learning, enhanced learner-centered culture, and greater institutional accountability) were perceived to a similar degree as accomplished if faculty were engaged with learning outcomes assessment. Differences in perceptions about whether or not the 12 conditions increased or positively influenced faculty engagement with assessment supported Kramer, Hanson, and Olsen's (2010) premise that a gap exists between institutions and faculty concerning *what* internal and external conditions are necessary to ensure faculty are engaged with LOA practices, and *how* those conditions actually increase engagement. These differences also implied that faculty were not as convinced as academic leaders that the 12 conditions increased engagement with LOA, suggesting that faculty were more skeptical about the merits of institutional conditions designed to increase their engagement, possibly believing they were already engaged at sufficient levels or that information about the relationships between institutional strategies and classroom LOA practices were unclear.

Findings were also consistent with Hutchings' (2010) claim that if faculty are on the receiving end of decisions made by others (internal or external) regarding teaching,

learning, and assessment practices, they are less likely to invest in the process, reinforcing the notion of faculty resistance. Nunley, Bers, and Manning (2011) recommend that two-year institutions should employ inclusive decision-making processes to ensure faculty, particularly part-time faculty, participate in assessment practices. CCCS leadership teams may need to examine if their current LOA decision-making processes include enough faculty to ensure adequate faculty representation when adopting LOA strategies that supposedly increase faculty engagement.

Research question 3.

3. Do the two constructs of Functioning and Influence predict the outcome variable Effectiveness for the entire sample, for academic leaders and for faculty? Is prediction significantly different for those two groups?

A standard (or simultaneous) multiple regression analysis (Tabachnick & Fidell, 2007) was performed to examine if the two independent variables FUNCTION and INFLUENCE were predictive of the outcome variable EFFECT. An alpha level of .05 was used for each test. A test for homoscedasticity was first performed to examine the variance of the residual terms (see Figure 4). Residual statistics and the normal probability plot demonstrated the residuals at each level of the predictors were homogenous and residuals were normally distributed.

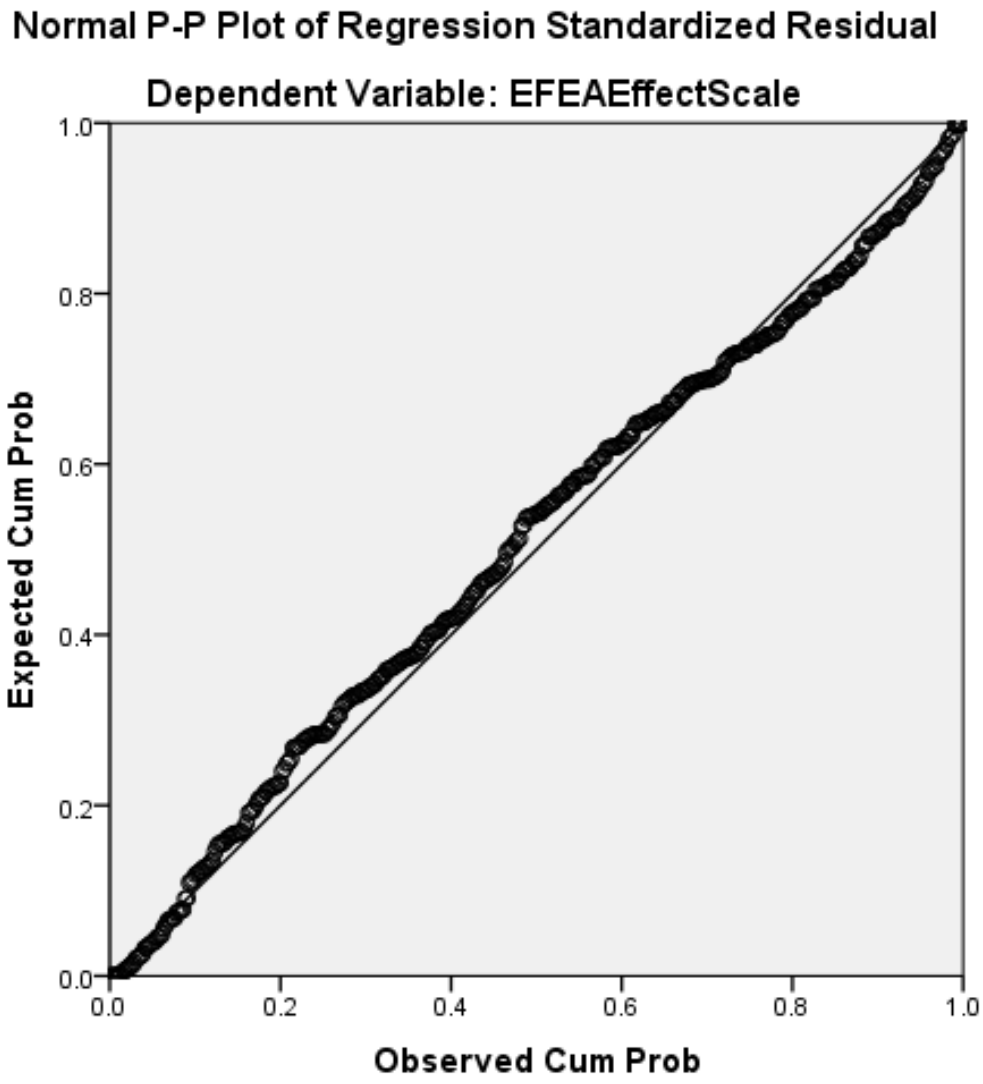

Figure 4. Standardized P-plot for prediction model.

A scatterplot demonstrated that errors were not random, and possibly correlated with the outcome variable, reflecting that an external variable that was not included in the analysis may have influenced the outcome variable (see Figure 5).

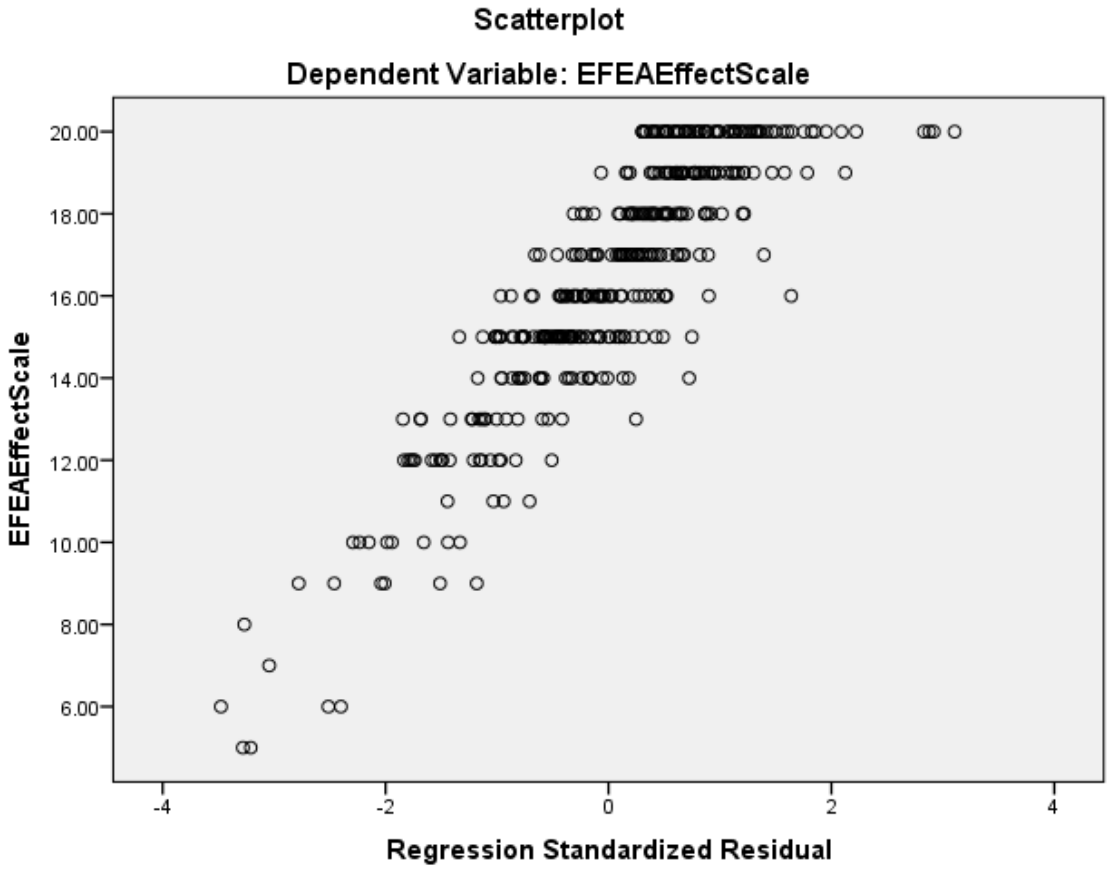

Figure 5. Residual scatterplot for prediction model for all cases.

For the EFEA total scale, correlation coefficients were considered adequate and all were significant at $p \leq .05$ (see Table 29). No coefficients > .90 emerged, reflecting no issues with multicollinearity. The multiple correlation between the predictors and the dependent variable was $R = .47$. The prediction model was statistically significant, $F(2, 400) = 57.16$, $p < .001$, and accounted for approximately 22% of the variance in Effectiveness ($R^2 = .22$, Adjusted $R^2 = .22$). Raw and standardized regression coefficients of the predictors together with their correlations with EFFECT, squared semi-partial correlations, and structure coefficients are also displayed in Table 29. Raw coefficients signified that for every additional point contributed to the FUNCTION measure, a .04

rise was expected in Effectiveness. Similarly, for every additional point on the INFLUENCE measure, a gain of .16 could be predicted on the Effectiveness measure, indicating both predictor variables contributed positively to the model.

Table 29
Correlation and Regression Coefficients for the EFEA Total Scale

Model	*B*	*SE-b*	*Beta*	*p*	Pearson *r*	sr^2	Structure coefficient
Constant	8.62	.76					
Functioning	.04	.02	.11	.03	.31*	.01	.65
Influence	.16	.02	.41	<.001	.46**	.13	.98

Note. $R^2 = .22$; $F(2, 400) = 57.16$, $p < .001$

Effectiveness was primarily predicted by INFLUENCE and to a lesser extent by FUNCTION. Both predictors were statistically significant at $p < .05$, indicating both predictors had a significant impact on the outcome. The unique variance explained by each of the variables indexed by the squared semi-partial correlations (sr^2) was low, indicating the percentage of variance that FUNCTION explained (approximately 1%) was much lower than the percentage explained by INFLUENCE (approximately 13%). Structure coefficients were calculated in order to examine the amount of variance that the independent variables shared with the variance from the predicted *Y* scores (Field, 2009). Inspection of the structure coefficients suggests that INFLUENCE is a sufficient predictor of the underlying variable described by the model, while FUNCTION contributes to a lesser degree to the prediction model.

Academic leaders.

For academic leaders, correlation coefficients were considered sufficient for FUNCTION and EFFECT at $r = .46$ and INFLUENCE and EFFECT at $r = .59$ (see Table 30). Multicollinearity was not present. The multiple correlation between the observed

value and the predicted value of the criterion variable was $R = .62$. The prediction model was statistically significant, $F(2, 51) = 14.74$, $p \leq .001$, and accounted for approximately 38% of the variance in Effectiveness ($R^2 = .38$, Adjusted $R^2 = .36$).

Table 30
Regression Coefficients for Academic Leaders

Model	*B*	*SE-b*	*Beta*	*p*	Pearson *r*	sr^2	Structure coefficient
Constant	5.96	2					
Functioning	.08	.05	.23	.09	.46	.04	.74
Influence	.19	.05	.47	.001	.59**	.17	.95

Note. $R^2 = .38$; $F(2, 51) = 14.74$, $p < .001$

Raw coefficients signified that for every additional point contributed to the FUNCTION measure, a .08 rise was expected in Effectiveness. Similarly, for every additional point on the INFLUENCE measure, a gain of .19 could be predicted on the Effectiveness measure, indicating both predictor variables contributed positively to the model for academic leaders. The percentage of variance that FUNCTION explained (approximately 4%) was lower than the percentage explained by INFLUENCE (approximately 17%), reflecting that Effectiveness was primarily predicted by INFLUENCE and to a lesser extent by FUNCTION. Only INFLUENCE was statistically significant at $p < .05$, indicating this predictor had a significant impact on the outcome for academic leaders.

Faculty.

For faculty, correlation coefficients were considered sufficient for FUNCTION and EFFECT at $r = .27$ and INFLUENCE and EFFECT at $r = .43$ (see Table 31). Multicollinearity was not present. The multiple correlation between the observed value and the predicted value of the criterion variable was $R = .44$. The prediction model was

statistically significant, $F(2, 349) = 40.90$, $p \leq .001$, and accounted for approximately 19% of the variance in Effectiveness ($R^2 = .19$, Adjusted $R^2 = .19$).

Table 31
Regression Coefficients for Faculty

Model	*B*	*SE-b*	*Beta*	*p*	Pearson *r*	sr^2	Structure coefficient
Constant	9.28	.83					
Functioning	.04	.02	.09	.12	.27	.01	.62
Influence	.15	.02	.39	<.001	.43**	.17	.99

Note. $R^2 = .19$; $F(2, 349) = 40.90$, $p < .001$

Raw coefficients signified that for every additional point contributed to the FUNCTION measure, a .04 rise was expected in Effectiveness. Similarly, for every additional point on the INFLUENCE measure, a gain of .15 could be predicted on the Effectiveness measure, indicating both variables contributed positively to the model. The percentage of variance that FUNCTION explained (approximately 1%) was lower than the percentage explained by INFLUENCE (approximately 17%), reflecting that Effectiveness was primarily predicted by INFLUENCE. Only INFLUENCE was statistically significant at $p < .05$, indicating this predictor had a significant impact on the outcome for faculty. A test of significance between correlation coefficients was calculated to assess if there was a statistically significant difference between the multiple correlation coefficients attained for academic leaders ($R = .62$) and faculty ($R = .44$). Results demonstrated no statistically significant differences existed, $p = .10$, indicating equivalency in the strength of the prediction for the two groups (Howell, 2008).

The primary goal of the multiple regression analysis was to investigate the relationship between the dependent variable and several independent variables to determine the strength of the relationship between the variables and to assess the

importance of each of the independent variables to the relationship. Statistical significance indicated that the variance explained in the model was not due to chance, thus perceived functioning of institutional conditions and perceived increased faculty engagement with assessment were, together, significant predictors of perceived levels of effectiveness in learning outcomes assessment. The regression analysis showed that INFLUENCE was a greater predictor of EFFECT than FUNCTION, but the two variables together produced a better prediction model than either variable independently.

The test of significance between multiple regression correlations reflected that coefficients were not significantly different, suggesting CCCS faculty and academic leaders both viewed Functioning and Influence as of equivalent strength in predicting Effectiveness. However, variance explained was lower for faculty (R^2 = .19) than for academic leaders (R^2 = .38), indicating that FUNCTION and INFLUENCE were more closely related to Effectiveness for academic leaders than for faculty. Results of the *t*-test for group differences also implied that academic leaders believed more strongly than faculty that the 12 conditions increased faculty engagement with assessment, suggesting a trend that academic leader attitudes were more positive about the ability of the 12 conditions to elicit greater faculty engagement in LOA practices, and to achieve outcomes of effective assessment practices.

Additionally, a large amount of variance was not explained by this model (78%), leaving open the possibility that the greatest influence on faculty and academic leader perspectives concerning factors that elicited greater faculty engagement was not represented by or included in the 12 institutional conditions. Institutional conditions presented in the SoA literature that allegedly have peripheral influence on faculty

engagement with LOA that were not specifically identified in the 12 institutional conditions (and therefore the three EFEA constructs) may have had more influence on this particular population than those examined in previous studies, possibly accounting for unexplained variance; e.g., individual intrinsic motivators such as personal confidence in using assessment, negative experiences with assessment, and/or personal interest or commitment to the profession (Andrade, 2010; Haviland, 2009); internal institutional factors such as physical environment, campus climate, and/or organizational decision-making processes (Hutchings, 2011; Smith, 2005); and external influences including national or state mandates, specific professional accreditation or organization association requirements, private sector influence and support, and/or local community or employer partner expectations (Gray, 2010; Grunwald & Peterson, 2003).

Research question 4.

4. What are CCCS faculty perceptions of their own engagement with learning outcomes assessment? Specifically,
    a. In what learning outcomes assessment practices do faculty engage?
    b. Why do faculty engage with these practices?
    c. How do faculty know student learning has occurred?
    d. What kind of data inform changes faculty make to their teaching practices?

Results from the multiple response analysis demonstrated that faculty within the CCCS are engaged in all learning outcomes assessment (LOA) practices defined by the content analysis performed in the pilot study. An average of 256 faculty members responded to the four sub-questions. Percentage of cases reflected the percentage of

faculty that selected the category option divided by the number of responses for the item as a whole. Comparisons between full-time and part-time faculty responses were conducted by examining frequencies between the respective groups. Statistical significance of differences among responses between full-time and part-time faculty was assessed using a Chi-square analysis with a significance level of .05.

4a. Examples of practice.

Responses to sub-question one revealed that faculty were primarily engaged in traditional LOA practices (Suskie, 2009), e.g., Exams (85%), Classroom Discussion/Lecture (85%), and Written Essays (62%) (see Figure 6). The use of Rubrics also emerged as a predominant practice at 62%, and all other categories reflected engagement at 56% or lower. Other examples of LOA practices faculty indicated they were engaged in included Artifacts, Case Studies, Concepts Maps, Service Learning, Oral Presentations, Games, Digital Storytelling, Design Projects, and Lab Reports.

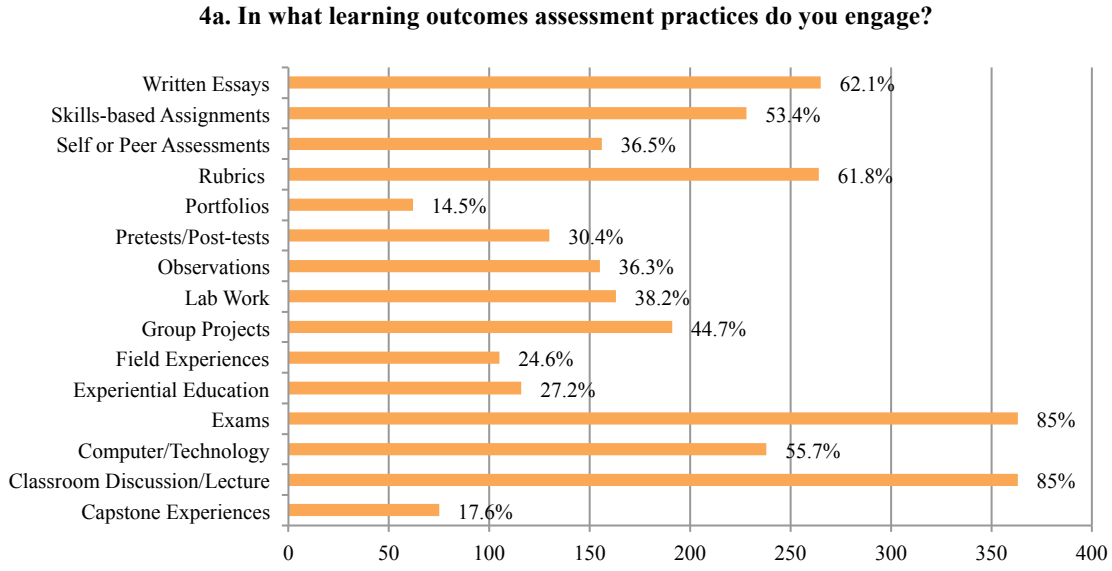

Figure 6. Percentages of faculty engagement with LOA practices.

Differences between full-time and part-time faculty reflected that in all cases, full-time faculty indicated they engaged in LOA practices more often than part-time faculty, as more responses were received from full-time faculty (see Table 32). The greatest percentage differences between groups were evident in Capstone Experiences at 59%, Group Projects at 50%, and Lab Work and Pretests/Post-tests at 40%, while the lowest percentage differences were evident in Exams (21%), Written Essays and Rubrics (18%), and Classroom Discussion/Lecture (12%). Results of the chi-square test reflected there were no statistically significant differences between the two groups on response categories, $\chi^2 = 37.56$, $df = 40$, $N = 578$, $p = .58$.

Table 32
Chi-Square Analysis of Differences Between Full-Time and Part-Time Faculty LOA Practices

4a. In what learning outcomes assessment practices do you engage?						
Variable		Academic status				
	n	F/T	P/T	% diff.	χ^2	*p*
Total Question	578				37.56	0.58
Exams	360	218	142	21		
Classroom Discussion/Lectures	359	201	158	12		
Rubrics	262	155	107	18		
Written Essays	261	154	107	18		
Skills-based Assignments	224	145	79	29		
Group Projects	187	140	47	50		
Computer/Technology	234	139	95	19		
Lab Work	160	112	48	40		
Self or Peer Assessments	152	103	49	36		
Observations	151	96	55	27		
Pretests/Post-tests	127	89	38	40		
Experiential Education	115	77	38	34		
Field Experiences	103	69	34	34		
Capstone Experiences	73	58	15	59		
Portfolios	62	40	22	29		

Findings from sub-question 4a. reflected that CCCS faculty respondents most often utilized traditional learning outcomes assessment (LOA) practices; e.g., exams, classroom discussion/lectures, and written essays (Angelo & Cross, 1993; Banta, 2002; Maki, 2010; Suskie, 2009; Walvoord, 2010). However, over half of respondents indicated they were also engaged in LOA practices as defined by the SoA literature as contemporary, or directly tied to learner outcomes and formative in design (Miles & Wilson, 2004; Suskie, 2009; Walvoord, 2010), including the use of rubrics, integration of

technology, skills-based activities, and collaborative/group projects. While relative few faculty were engaged in LOA practices deemed as authentically learner-centered; e.g., portfolios, capstones, or experiential methods (Driscoll & Wood, 2007; Maki, 2010; Suskie, 2009), results suggested that most CCCS faculty were engaged in LOA practices designed to foster student learning. Comments from faculty also reflected a plethora of contemporary practices were in use, indicating CCCS faculty possessed some knowledge of, and were gaining experience with, LOA practices in their classrooms and learning environments; e.g., "I provide intake forms and post-session assessments for students from the Writing Center that give students formative and ongoing feedback about their progress."

The lack of statistically significant differences between the two CCCS faculty groups suggested that full-time faculty responses represented part-time faculty responses, thus part-time faculty were participating in LOA practices similar to those of full-time faculty. Percentage of responses also reflected that part-time faculty response patterns were identical to those of full-time faculty; e.g., both groups indicated they utilized classroom discussion/lectures, exams, written essays, and rubrics more often than other LOA practices. This pattern could indicate that CCCS institutions individually or collectively adopted internal strategies to address the common challenge of soliciting part-time faculty involvement in LOA practices in a measurable or effective manner (Nunley, Bers, & Manning, 2011). Findings also suggested that while traditional assessment methods remained the predominant method of choice, overall faculty practices and attitudes reflected movement toward more learner-centered, contemporary LOA practices designed to meet student learning objectives and program outcomes.

4b. Reasons for engaging.

Results demonstrated that Effective Teaching at 92% was the predominant reason why faculty engaged in LOA practices, followed by efforts to Motivate Students, Improve Teaching, and facilitate Student Learning Success at 79% (see Figure 7). The rationale selected the least was engaging in LOA practices for Scholarship/Research purposes at 14.6%, followed by Obligation at 19.7%. Other rationale faculty provided for why they engaged in LOA practices included meeting Accreditation Requirements, encouraging Collaboration among Students, encouraging Critical Thinking, facilitating Citizenship, and collecting Longitudinal Data.

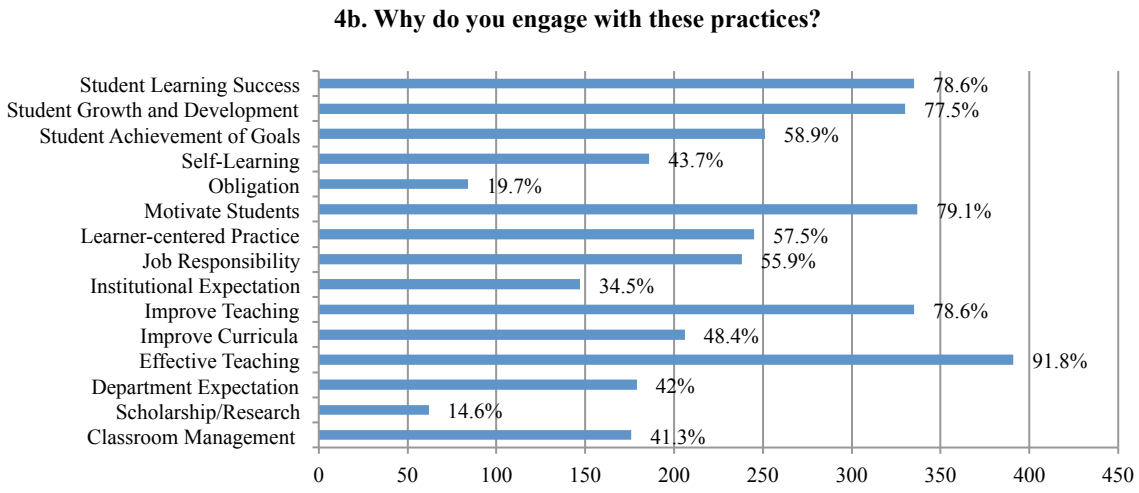

Figure 7. Percentages of faculty rationale for engaging in LOA practices.

Differences between full-time and part-time faculty reflected that in all cases but Department Expectation, full-time faculty provided a rationale for why they engaged in LOA practices more often than part-time faculty (see Table 33). Part-time faculty exceeded full-time faculty responses on Department Expectation by 6%. The greatest percentage differences between groups were evident in Scholarship/Research at 38%,

Improve Curricula at 32%, and Improve Teaching at 27%, while the lowest percentage differences between groups were between Institutional Expectation and Obligation at 1%, Department Expectation at 6%, and Job Responsibility at 13%. Results of the chi-square test reflected there were no statistically significant differences between the two groups on response categories, $\chi^2 = 14.17$, $df = 15$, $N = 578$, $p = .51$.

Table 33
Chi-Square Analysis of Differences Between Full-Time and Part-Time Faculty LOA Rationale

4b. Why do you engage with these practices?						
Variable		Academic status				
	n	F/T	P/T	% diff.	$\chi 2$	*p*
Total Question	578				14.17	0.51
Effective Teaching	387	233	154	20		
Improve Teaching	332	211	121	27		
Student Learning Success	331	206	125	24		
Motivate Students	333	203	130	22		
Student Growth and Development	326	190	136	17		
Student Achievement of Goals	247	149	98	21		
Learner-centered Practice	242	147	95	21		
Improve Curricula	205	135	70	32		
Job Responsibility	235	133	102	13		
Self-Learning	182	114	68	25		
Classroom Management	175	107	68	22		
Department Expectation	176	83	93	6		
Institutional Expectation	144	73	71	1		
Obligation	83	44	39	1		
Scholarship/Research	61	42	19	38		

Results of subquestion 4b. indicated that, in general, faculty engaged in LOA practices most often for reasons related to improving teaching or ensuring effective

teaching, while reasons for student success were a close second; e.g., to motivate students, facilitate student success, and cultivate student growth and development. These results suggested that while teaching remained a priority, student success and learning were driving factors for improving teaching. When examined closely, however, results of subquestion b. were somewhat inconsistent with the results of subquestion a., wherein faculty indicated they were most often engaged in traditional LOA practices that were identified by the SoA literature as primarily summative and grade-centered, and the least effective in meeting student learning outcomes (Black, Harrison, Lee, Marshall, & Wiliam, 2009; Driscoll & Wood, 2007; Maki, 2010; Suskie, 2009).

This inconsistency implied that CCCS faculty may have had a lack of knowledge about how their assessment practices related to the purposes of assessment and/or how their practices impacted student learning. Additionally, while faculty appeared to understand enough about assessment to demonstrate they were engaged for the purposes of student success, the gap between actual practice and the rationale for choosing those practices demonstrated a slightly disjointed process. Explanation for this gap could include that because the survey came from campus Presidents and was affiliated with the CCCS Provost's office, it was possible that faculty selected responses about why they engaged with LOA practices that would be considered *correct* or in accordance with stated institutional goals.

Percentage differences between full-time and part-time faculty responses reflected highly analogous views about why both groups engaged in LOA practices. The primary reasons full-time faculty indicated they engaged in LOA practices were to ensure effective teaching, improve teaching, facilitate student success, motivate students, and/or

cultivate student growth and development. Primary reasons part-time faculty provided for engaging in LOA practices were identical yet ranked in a slightly different order; e.g., to ensure effective teaching, cultivate student growth and development, motivate students, facilitate student success, and improve teaching. This trend reflected that while reasoning appeared very similar, part-time faculty did not place the same emphasis on improving teaching as full-time faculty, supporting Nunley, Bers, and Manning's (2011) assertion that part-time faculty often do not demonstrate a thorough understanding of the inter-dependence between teaching, learning, and assessment, lending the institution to possible breakdowns in meeting outcomes for learning assessment.

Additionally, the greatest percentage differences between full-time and part-time faculty responses reflected low agreement for scholarship/research purposes, improving curricula, improving teaching, and self-learning, indicating part-time faculty did not use these factors in their decision-making processes to engage with LOA practices as often as full-time faculty. The lowest percentage differences in responses reflected high agreement between groups for department expectations, institutional expectations, job responsibilities, and/or other obligations, indicating that full-time and part-time faculty both believed job responsibilities influenced their rationale for engaging in LOA practices at nearly the same rate. Aside from scholarship and research purposes wherein adjunct faculty would not be expected to engage, this result also implied that part-time faculty believed meeting employment obligations or student expectations as more critical than improving their teaching or their institution's assessment practices.

These results speak directly to Keeling and Hersh's (2011) claim that incentives for contingent faculty to engage in assessment activities is regrettably low as they do not

have the same resources, access to professional development to improve their teaching, time to work with students outside the classroom, and their performance often rests on student evaluations, thereby severely limiting any sense of connection or bonding to the institution, its curricula, or its effectiveness. As there were no statistically significant differences between faculty groups, however, full-time faculty responses were indicative of part-time faculty responses regarding the reasons why they engaged in LOA practices. This outcome implied that the proportion of part-time faculty that responded may have had an interest in or some knowledge of LOA practices, further supporting the notion that CCCS institutions adopted internal strategies to elicit greater involvement from part-time faculty.

4c. Evidence of learning.

Faculty expressed that they knew student learning had occurred primarily through Score/Grade Improvement at 78%, followed closely by Student Ability/Skill Increase at 74%, Student Feedback at 72%, and Student Growth/Change at 70% (see Figure 8). Methods that helped faculty the least in understanding if student learning had occurred included Placement Rates at 10%, Electronic Summaries/Reports at 14%, and Logs/Journals at 15%. Other means faculty provided for how they knew if student learning had occurred included Student Self-Assessments, Intuition, Licensing Board Results, Successful Academic Transfer, Employer Feedback, and Levels of Participation.

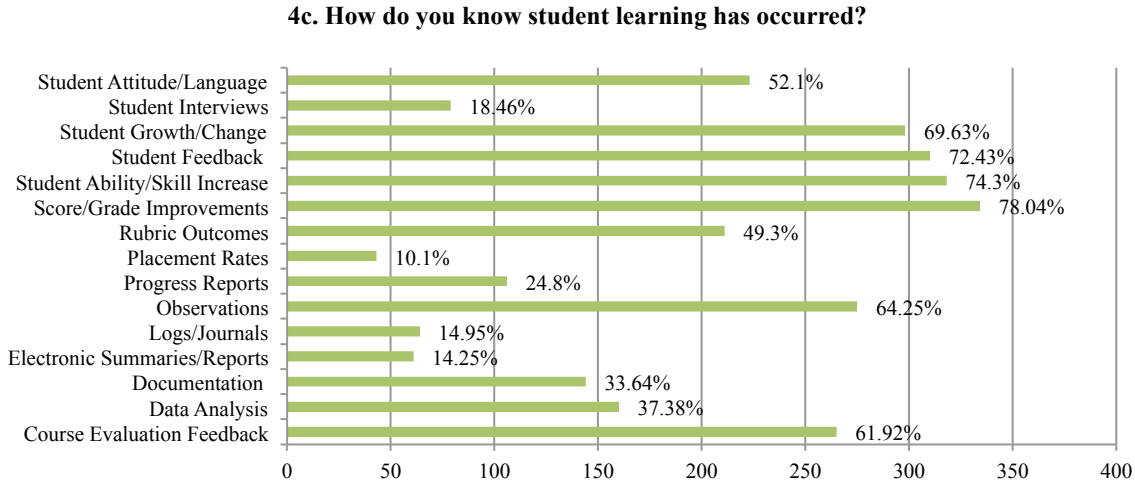

Figure 8. Percentages of faculty evidence of student learning.

Differences between full-time and part-time faculty reflected that in all cases, full-time faculty reflected they used these strategies to understood whether or not student learning had occurred more often than part-time faculty (see Table 34). The greatest percentage difference between groups was evident in use of Placement Rates at 76%, Student Interviews at 45%, and Data Analysis at 43%. The lowest percentage difference between groups was evident between Student Attitude/Language at 16%, and Electronic Summaries/Reports, Rubric Outcomes, and Score/Improvements at 17%. Results of the chi-square test reflected there were no statistically significant differences between the two groups on response categories, $\chi^2 = 10.44$, $df = 13$, $N = 578$, $p = .66$.

Table 34
Chi-Square Analysis of Differences between Full-Time and Part-Time Faculty Evidence

4c. How do you know student learning has occurred?						
Variable		Academic status				
	n	F/T	P/T	% diff.	$\chi 2$	*p*
Total Question	578				10.44	0.66
Student Ability/Skill Increase	314	194	120	24		
Score/Grade Improvements	331	193	138	17		
Student Feedback	306	180	126	18		
Student Growth/Change	295	177	118	20		
Observations	272	173	99	27		
Course Evaluation Feedback	263	157	106	19		
Student Attitude/Language	221	128	93	16		
Rubric Outcomes	209	122	87	17		
Data Analysis	157	112	45	43		
Documentation	143	92	51	29		
Progress Reports	103	73	30	42		
Student Interviews	76	55	21	45		
Logs/Journals	62	41	21	32%		
Placement Rates	41	36	5	76%		
Electronic Summaries/Reports	60	35	25	17%		

Sub-question 4c. reflected that, overall, faculty used student-related performance indicators most often to evaluate whether or not student learning had occurred; e.g., grade improvements, ability or skill improvements, student feedback, and student growth or change. These types of indicators reflected that CCCS faculty used both formative (ongoing, immediate, and learner-centered) and summative (cumulative, long-term, and evaluative) learning outcomes assessment practices (Black, Harrison, Lee, Marshall, & Wiliam, 2009) to develop their understanding of student learning. The SoA literature recommends faculty use of both types of measures in order to generate reliable evidence

that learning has occurred, and to create opportunity to gain experience with using assessment in ways other than for grading purposes (Brookhart, 2004; Driscoll & Wood, 2007; Maki, 2010; Suskie, 2009). The predominant use of student feedback by both full-time and part-time faculty to discern if learning had occurred was particularly encouraging, as this LOA practice is hailed by leading SoA scholars (Banta, Jones, & Black, 2009; Black, Harrison, Lee, Marshall, & Wiliam, 2009; Huba, & Freed, 2000; Keeling, Wall, Underhile, & Dungy, 2008; Maki, 2010; Shavelson, 2010; Suskie, 2009) as particularly effective for improving teaching and evaluating student learning, and thus demonstrating institutional effectiveness.

Results also reflected that CCCS faculty were not in the practice of using program or institutional data in a consistent manner to inform their understanding of whether or not student learning had occurred, as institutional, department, and program reports, rates, and/or interviews were not commonly employed. This pattern suggested that faculty may not have had access to, knowledge of, or understood protocols for requesting institutional data, or had training in how to interpret such data. Comments reflected that faculty utilized some external measures to aid in their understanding of student learning, including licensing board and program accreditation results and employer feedback, but most often used individual student progress indicators; e.g., "I know students have learned when they demonstrate they have mastered the material by completing hands-on activities successfully," and "The quality of discussions, the questions students ask, students' ability to explain or speak intelligently on a topic, to apply material, and to discuss implications all reflect student learning."

The greatest percentage differences between full-time and part-time faculty responses reflected low agreement for placement rates, student interviews, progress reports, or data analysis, indicating part-time faculty did not use these methods to assess or evaluate if student learning had occurred as often as full-time faculty. While use of student-related performance measures is crucial to developing a broad and deep understanding of student learning (Jankowski & Provezis, 2011), program, department, and/or institutional data also aid faculty in gauging student learning; e.g., course grade reports for the same course taught by several different instructors can promote discussion among faculty about assessment methods that may be measuring similar or different attributes or knowledge (Volkwein, 2011). The lowest percentage differences in responses reflected high agreement between groups for student attitudes/language, electronic summaries/reports, rubric outcomes, and score or grade improvements, again indicating that both full-time and part-time faculty most often used student-related performance indices to inform their practice about student learning. As there were no statistically significant differences between faculty groups, full-time faculty responses were indicative of part-time faculty responses regarding how they knew student learning had occurred.

4d. How data were used.

Results reflected that faculty used Student Performance Data and Student Grades at 84% most often to inform changes needed in their teaching practices (see Figure 9), with Course Evaluation Feedback at 83% and Students Responses/Answers at 71% closely thereafter. Data that informed faculty the least included Student Honors/Awards

and Accreditation Reports at 10%, and Scores on Licensure/Certification at 13%, Program Reports at 14%, Placement Rates at 17%, and Graduation Rates at 18%.

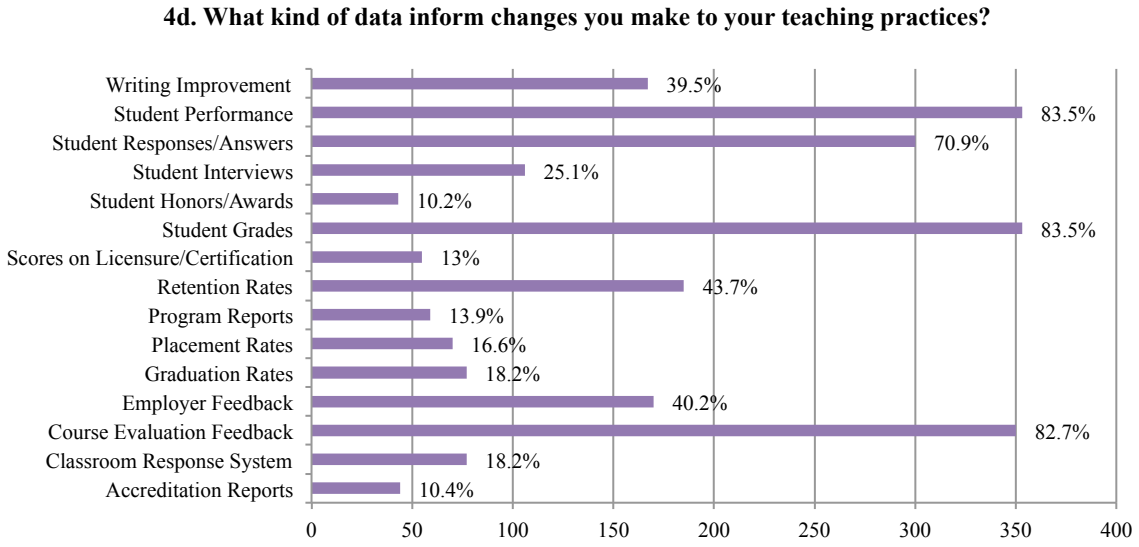

Figure 9. Percentages of faculty data use to inform teaching.

Differences between full-time and part-time faculty reflected that in all cases, full-time faculty utilized data to inform the changes they made to their courses more often than part-time faculty (see Table 35). The greatest percentage difference between groups was evident in Scores on Licensure/Certifications at 89%, Placement Rates at 82%, Graduation Rates at 71%, and Accreditation Reports at 63%. The lowest percentage difference between groups was evident in Employer Feedback at 11%, Student Responses/Answers at 14%, and Course Evaluation Feedback and Writing Improvement at 20%. Results of the chi-square test reflected there were no statistically significant differences between the two groups on response categories, $\chi^2 = 22.68$, $df = 24$, $N = 578$, $p = .54$.

Table 35
Chi-Square Analysis of Differences between Full-Time and Part-Time Faculty Data Use

4d. What kind of data inform changes you make to your teaching practices?						
Variable		Academic status				
	n	F/T	P/T	% diff.	χ^2	*p*
Total Question	578				22.68	0.54
Student Grades	351	213	138	21		
Student Performance	349	213	136	22		
Course Evaluation Feedback	347	209	138	20		
Student Responses/Answers	297	170	127	14		
Retention Rates	181	124	57	37		
Writing Improvement	165	99	66	20		
Employer Feedback	167	93	74	11		
Student Interviews	104	69	35	33		
Graduation Rates	75	64	11	71		
Placement Rates	66	60	6	82		
Scores on Licensure/Certification	54	51	3	89		
Classroom Response System	76	49	27	29		
Program Reports	58	44	14	52		
Accreditation Reports	43	35	8	63		
Student Honors/Awards	42	34	8	62%		

Similar to the results of 4c., sub-question 4d. outcomes reflected that CCCS faculty used student-related performance criteria; e.g., student grades, course evaluation feedback, and student responses/answers, most often to determine if changes needed to be made to their teaching practices. Program and institutional data; e.g., accreditation reports, student honors/awards, program reports, placement rates, and graduation rates were used the least in determining if changes needed to be made to teaching practices, suggesting that faculty did not view these types of data as particularly useful to inform their practices in the learning environment. Findings were consistent with Shavelson's

(2010) contention that while some indirect measures are useful to gauge institutional effectiveness (e.g., placement rates, transfer rates), direct measures of student learning conducted by faculty are the most precise and accurate indicators of student learning.

Results of subquestion 4d. also supported Banta, Griffin, Flateby, and Kahn's (2009) observation that faculty in postsecondary education are involved in ground-level or direct assessments, but are unsure as to how these assessments or their teaching practices relate to broader program or institutional assessment processes; i.e., the integral connection between classroom and program or institutional level assessment has not yet been made. Comments from CCCS faculty echoed this observation; e.g., "I could use some training in how to use course evaluation feedback to improve my teaching and my students' learning," and "I have NEVER been observed or received any type of feedback on how my teaching can be improved. I think most adjuncts would appreciate this type of help."

Such comments indicated that CCCS institutions could provide development, enrichment, and/or training opportunities concerning the collection, use, and management of multiple types of data to inform their teaching and assessment practices, particularly for part-time faculty. The need to understand how student learning data could be used to enhance teaching was evident, alongside the need to understand how the practices that faculty used were related to institutional outcomes for student learning. Examples of assessment practices that extend outward from the learning environment outward include electronic portfolio assessment, rubric systems, and online assessment communities (Banta, Griffin, Flateby, and Kahn, 2009), while examples of trickle-down assessment methods that may benefit faculty include employer satisfaction survey data, alumni focus

group reports, and transfer student surveys (Blaich & Wise, 2011; Nunley, Bers & Manning, 2011).

The greatest percentage differences between full-time and part-time faculty responses reflected low agreement for scores on licensure/certifications, placement rates, graduation rates, and accreditation reports, indicating part-time faculty did not use these factors to improve their teaching as often as full-time faculty. Findings again reinforced the premise that part-time faculty were not utilizing program or institutional data, but rather used their own course data to makes changes to their courses or teaching practices. The lowest percentage differences in responses reflected high agreement between groups for employer feedback, student responses, course evaluation feedback, and writing improvement, indicating that both full-time and part-time faculty were most often in agreement that employer and student feedback were valuable tools by which to gauge teaching effectiveness and inform their practice about student learning. As there were no statistically significant differences between faculty groups, full-time faculty responses were indicative of part-time faculty responses regarding the data they used to make changes or improve their teaching practices.

Overall, percentage differences between groups indicated more full-time faculty responded to all subquestions and response categories in research question 4 (RQ4) than part-time faculty, which was consistent with Nunley, Bers, and Manning's findings in their survey of chief academic officers from U.S. community colleges (2011). This trend was reversed in the pilot study, however, wherein more part-time faculty responded than full-time faculty. This occurred possibly because the pilot was administered in the summer semester when most CMC full-time faculty were not on contract. According to

Nunley, Bers, and Manning, the lack of participation by contingent faculty in institutional or program initiatives is not uncommon as adjunct faculty often have tenuous connections with their colleges due to pay, benefit, and availability constraints. Keeling and Hersh (2011) also attest that part-time, adjunct, affiliate, and/or contract faculty typically invest less time and interest in assessment activities, receive less training and development opportunities, hold more than one job, and are less available to students. The American Federation of Teachers-Higher Education (AFT) (2009) claims that these issues thwart student success and completion, and therefore, as part-time faculty comprise 70% of the faculty workforce in U.S. community colleges, institutions must require part-time faculty participation in LOA practices if learning outcomes are to be achieved.

Chapter Five: Discussion

The problem addressed in this study was the assumption that faculty at the postsecondary level in the U.S. are not sufficiently or effectively engaged with learning outcomes assessment (LOA) activities and/or practices. This issue emerged in two primary ways within the Scholarship of Assessment (SoA) body of literature: (1) as a misalignment of learning outcomes assessment practices between faculty and their institutions, and (2) as a lack of transparency concerning what faculty are, in fact, doing with respect to learning outcomes assessment. Moreover, an abundance of evidence (Banta, Black, Kahn, & Jackson, 2004; Cohen & Brawer, 2008; Friedlander & Serban, 2004; Miles & Wilson, 2004; Nunley, Bers, & Manning, 2011; Rouseff-Baker & Holm, 2004; Serban, 2004; Skolits & Graybeal, 2007) indicated that two-year colleges had particular difficulty in discerning whether or not faculty assessment practices aligned with institutional assessment efforts, in recognizing the practices faculty actually engaged in or utilized, and if institutional efforts to increase faculty engagement with assessment contributed to institutional goals for effective assessment systems.

Therefore, the primary purpose of this study was to contribute to the SoA literature by determining if Colorado Community College System (CCCS) faculty perceptions about conditions that presumably elicit greater engagement with learning outcomes assessment aligned with academic leaders' perceptions, illuminating faculty perceptions about their own practices in learning outcomes assessment, and providing a

venue for greater faculty representation in the SoA literature. These objectives were accomplished by developing and testing a new measure designed to: (1) describe CCCS faculty and academic leaders' perceptions on three newly established constructs representing 12 institutional conditions and 5 effectiveness indicators; (2) examine the relationships between the three constructs by academic status; (3) examine the differences between these perceptions through scores on measures created from items that reflected the extent to which the 12 conditions were present and functioning, the extent to which the 12 conditions increased faculty engagement, and the extent to which the 5 indicators of effectiveness were established as a result of faculty engagement with learning outcomes assessment; and (4) solicit faculty perceptions about their own levels of engagement and subsequent reasons for engaging with learning outcomes assessment.

Further, while scholarship concerning the nature of faculty engagement with learning outcomes assessment at two-year institutions is emerging, similar existing instruments; e.g., the *Faculty Survey of Student Engagement* (FSSE) supplemental survey (Haywood, Shaw, Nelson-Laird, & Cole, 2011), the *Institutional Support for Student Assessment* (ISSA) inventory (Peterson, Augustine, Einarson, & Vaughan, 1999), and the *Community College Faculty Survey of Student Engagement* (CCFSSE) (Center for Community College Student Engagement, 2012) did not appear to provide a comprehensive model from which to draw conclusions about institutional conditions that elicit faculty engagement, and whether or not those conditions had an impact on stated outcomes about the effectiveness of faculty engagement with assessment.

Subsequently, the primary goal in constructing the *Effective Faculty Engagement with Assessment* (EFEA) instrument was to create a comprehensive and distinct measure

of the perceived functioning of the 12 conditions, the perceived influence of the 12 conditions, and the perceived impact of the 12 conditions on the 5 indicators of effectiveness. The EFEA instrument solicited CCCS faculty and academic leader perspectives about their institutions' assessment strategies, practices, and resources that reportedly elicit greater faculty engagement with learning outcomes assessment. The instrument consisted of two parts: (1) an attitude scale designed to determine if alignment was present between the two groups regarding the 12 institutional conditions described previously, and (2) a multiple response section designed to provide transparency of current faculty practices in LOA and contribute faculty voice to the SOA literature.

Major findings from the pilot and field studies indicate that the EFEA instrument demonstrated sufficient reliability and validity for the total scale and the FUNCTION and INFLUENCE subscales within the parameters of the sample, research design, and methodology. While the EFFECT subscale demonstrated good reliability estimates for both the pilot and field instruments, it did not produce significant results on the convergent validity estimates within the context and parameters of this study. The EFFECT subscale's performance indicates that overall validity estimates may be insufficient to confirm validity evidence, thus inclusion of a discriminant test for construct validity is suggested in future studies to make plausible comparisons with the convergent coefficients (see Future Research section below).

Survey response rates for the field study reflected non-response (or gender) bias for males in the total CCCS population, suggesting representativeness was not achieved, while pilot study results indicated the opposite was true for the Colorado Mountain College (CMC) sample. Findings suggest that while the proportion of females was higher

in both populations, the topic, language, presentation, or incentives to participate did not necessarily appeal to CCCS male participants. However, Fleck and McQueen (1999) and Dillman, Eltinge, Groves, and Little (2002) claim that non-response bias for highly homogenous populations such as college faculty does not present serious concerns of bias or error, although this study provided recommendations strategies to solicit greater participation from male populations, particularly faculty (see Suggestions for Improvement of EFEA Instrument section below). Representativeness was achieved for the total population for Race/Ethnicity, indicating that those identified as other than White were represented by the predominant group.

Findings also reflected that CCCS faculty had less years of experience in learning outcomes assessment and were younger in age than academic administrators, a demographic phenomenon that could be promoted by campus leaders or decision-makers to highlight the merits of administrative decision-making abilities regarding conditions that elicit greater faculty engagement with assessment. Subsequently, since CCCS academic leaders had more experience with LOA practices, and were older in years than faculty, their perceptions that the 12 conditions would increase faculty engagement with LOA and meet effectiveness indicators may have been more accurate than faculty believed. For example, academic leaders most often make resource allocation decisions related to faculty development activities, indicating that opportunities within CCCS may have been appropriate and well-suited for faculty needs.

Finally, the construct Influence was overall a better predictor of Effectiveness than Functioning, indicating that both groups believed increased faculty engagement with assessment predicted effective assessment practice more effectively than solely having

the 12 conditions in place. Findings demonstrated that while both groups agreed the 12 institutional conditions were in place and functioning at CCCS institutions, the benefits to teaching and learning were not communicated or well-understood by faculty, particularly by part-time faculty. Further discussion of these outcomes and their connections to the problem statements in this study are presented below.

Alignment

Alignment between CCCS faculty and academic leader perspectives concerning whether or not the 12 institutional conditions were present and functioning across all CCCS campuses, and that the 5 indicators of effectiveness would result if faculty were engaged with learning outcomes assessment (LOA) practices at greater rates was evident in this study. Alignment was not evident between CCCS faculty and academic leaders concerning whether or not the 12 conditions as grouped increased faculty engagement with LOA practices. This difference suggested that faculty were not as confident as academic leaders that the 12 conditions were clear drivers for increasing greater faculty engagement, and that simply because the conditions were present and produced desired outcomes did not mean faculty levels of engagement automatically increased. Significant differences also reflected that CCCS campus or assessment leaders may not have been fully aware of the conditions necessary to ensure sufficient faculty engagement when adopting strategies for outcomes assessment, and/or that the strategies they adopted were not identified in the 12 conditions. However, as academic leaders had more years of experience in LOA, it is more likely that faculty were not involved in decision-making processes (voluntarily or involuntarily), or faculty were not informed of how the

conditions might benefit their engagement with LOA practices; e.g., student involvement or top leadership support.

Results further suggested that the 12 conditions were not perceived as effective in cultivating greater involvement from faculty as academic leadership might have expected, indicating that internal dialogue about factors that motivated, inspired, or drove faculty to engage at desired levels may have been insufficient. It is possible that the 12 conditions were not presented in meaningful groupings or language in the survey, or that the conditions were not in place long enough for engagement to occur at the time of this study. Responses to research question 4 (RQ4) reflected that faculty believed they were engaged in LOA practices at sufficient levels, thus the direct influence of the conditions on their practices also may not have been apparent.

Further, results from the multiple regression analyses indicated that that *both* FUNCTION and INFLUENCE were significant predictors of EFFECT, meaning CCCS faculty and academic leaders believed when the 12 institutional conditions were in place *and* increased faculty engagement, the 5 indicators of effectiveness of assessment were achieved. Faculty also indicated they believed the 5 effectiveness outcomes would be achieved if they were more involved in LOA practices, and that the conditions were relevant to their practices as reflected in high mean scores for the EFEA total scale and all three subscales. Therefore, CCCS faculty did indicate agreement that the 12 conditions were necessary and influential to predicting the achievement of outcomes, although their levels of agreement were lower than academic leaders.

With respect to alignment on the 12 conditions, factor loadings from the PFA on the INFLUENCE subscale indicated that resources (specifically release time, funding,

and staffing), training and development opportunities (specifically in data collection, use, and management), and student involvement in assessment practices were the top priorities for increasing faculty engagement. These same items achieved lower loadings on the FUNCTION subscale, indicating these factors were not viewed as functioning as well as other conditions. Responses from RQ4 also confirmed these findings, as faculty indicated that training and development in how to use data to communicate student learning, improve teaching, and make the connections to institutional effectiveness were insufficient, particularly for part-time faculty. Finally, factor loadings on the INFLUENCE construct reflected the lowest agreement that institutional accountability, top leadership, and institutional policies increased faculty engagement with LOA, suggesting that both groups did not view these conditions as particularly influential to increase faculty engagement within CCCS institutions.

Transparency

CCCS faculty engagement in LOA practices was transparent and visible in the findings of this study, albeit this was more apparent for full-time than for part-time faculty. Overall, findings reflected that CCCS faculty most often utilized traditional teacher-centered assessment methods to gauge student learning, followed closely by contemporary, learner-centered practices, indicating some advancement from reliance on summative methods to use of ongoing, formative methods reported to measure student learning most effectively (Angelo & Cross, 1993; Banta, 2002; Driscoll & Wood, 2007; Maki, 2010; Miles & Wilson, 2004; Suskie, 2009; Walvoord, 2010). CCCS faculty also used direct measures of student learning such as grades/score improvements, ability/skill increases, growth/change, and course evaluations, but seldom used indirect measures

(accreditation reports, graduation rates, or placement rates) to gauge student learning or improve teaching, consistent with best practices in institutional effectiveness (Garfield, 1994; Shavelson, 2010; Sternberg, Penn, & Hawkins, 2011).

Several gaps in practice emerged regarding faculty engagement practices. First, as noted previously, CCCS faculty indicated they most often utilized summative student-related performance indicators; e.g., grades, tests scores, evaluations, and end-of-course reports to denote student learning. However, they also indicated that student learning, student success, and better teaching were the primary reasons they engaged in LOA practices. These findings presented a slight juxtaposition in practices, rationale, and understanding of how LOA practices affect student learning, for if student learning, student success, and improved teaching were the primary reasons they engaged, formative rather than summative methods would have been the methods to inform them most accurately about student learning; e.g., student interviews, progress reports, self-assessments, or rubric results. Formative assessment practices provide more effective ways to improve teaching and learning than summative methods in that they provide immediate information to teachers and their students, thus instructional activities can be modified based on evidence of learning (Black, Harrison, Lee, Marshall, & Wiliam, 2003). Brookhart (2004), and Volkwein (2011) attest that if student learning truly is the primary motivating factor to engage in LOA practices, then ongoing, formative measures should be utilized more often than summative methods, which should then be reported out to programs or departments, and then rolled-up to the institution.

CCCS faculty use of summative and formative practices, and direct and indirect measures however, was considered an encouraging and progressive practice, implying

their rationale and decision-making processes to gauge learning was transitioning to include adoption of more progressive and accurate measures than grades, test scores, and/or essay results (Suskie, 2009; Walvoord, 2010). Moderate integration of rubrics, computer technology, and skills-based assignments also reflected movement towards learner-centered practices, suggesting transition away from teacher-centered practices (Banta, Griffin, Flateby, & Kahn, 2009; Garfield, 1994; Suskie, 2009).

Two-Year Institutions

Consistent with similar studies (Nunley, Bers, & Manning, 2011; Peterson & Einarson, 1999; Skolits & Graybeal, 2007), findings from this study reflected that CCCS full-time faculty were more engaged in LOA practices than part-time faculty. These studies also found that part-time faculty in most postsecondary institutions are on periphery of LOA practices, thus two-year institutions are particularly vulnerable to performance issues due to a heavy reliance on this employment segment, and consequently, institutional effectiveness may be jeopardized. If CCCS continues to employ part-time faculty in a similar fashion as the national trend for community colleges, they must examine whether or not their part-time faculty are engaged, how they are engaged, and how they can elicit greater engagement with assessment. This proposition is discussed further in the Implications section below.

While results of the Engagement items in this study reflected no significant differences between faculty regarding LOA practices, CCCS part-time faculty responses expressed a definitive need for more inclusive training and development, and access to the resources necessary to apply newly learned methods into their LOA practices. One example hailed by the League for Innovation in the Community College (2004) as

instrumental in garnering adjunct faculty participation in LOA activities includes the Dallas County Community College District's Adjunct Faculty Institute wherein development opportunities are provided in a number of formats; e.g., online and weekend formats, and while faculty are paid a stipend to attend, attendance is mandatory for all assessment-related trainings, regardless of whether or not a specific accrediting requirement is present.

Findings from this study were also consistent with SoA literature findings that two-year institutions have a more difficult time than 4-year institutions and universities in collecting, using, and analyzing student learning data that translates to institutional effectiveness (Grunwald & Peterson, 2003; Keeling & Hersh, 2011; Nunley, Bers, and Manning, 2011; Skolits & Graybeal, 2007). Part-time faculty responses to the Engagement items and subsequent comments clearly indicated a lack of understanding concerning how to use LOA data to improve teaching and learning, and how these practices related to broader institutional goals. CCCS part-time faculty indicated they were using LOA practices for student learning, student success, and better teaching reasons, but were not as engaged in LOA practices as full-time faculty, suggesting that part-time faculty may not have had access to, knowledge of, or understood protocols for requesting institutional data, or had training in how to interpret such data. Use of student-related performance measures, alongside program, department, and/or institutional data, aid faculty in gauging student learning; e.g., course grade reports for the same course taught by several different instructors could promote discussion among faculty about assessment methods that may be measuring different attributes or knowledge (Jankowski & Provezis, 2011; Volkwein, 2011).

Results also confirmed accounts (Baker, Jankowski, Provezis & Kinzie, 2012; Banta, Griffin, Flateby & Kahn, 2009; McClenney, 2004) that faculty in postsecondary education are highly involved in ground-level assessments wherein outcomes, pedagogy, and measurement correspond, but are unsure as to how these assessments or their teaching practices relate to broader program or institutional assessment processes; i.e., the integral connection between classroom and program or institutional level assessment has not yet been made. Schmidt (2012) found that community colleges often claim in dismay that they do not have the resources to support, or the finances to pay, adjunct faculty for participation in training or development activities, while part-time faculty often believe that development or involvement beyond their course is not part of their employment contract, so they do not participate.

Finally, results from this study demonstrated that the alleged problem of substandard instructional quality may not be as pressing an issue for CCCS institutions as it may be for the two-year institutions identified in the NCEE (2013) and Century Foundation Task Force (2013) reports, as faculty responses to all four subquestions in RQ4 were not statistically significantly different, suggesting that both groups had highly analogous views about and practices in learning outcomes assessment. Part-time faculty participation in assessment practices, however, was consistently lower than full-time faculty as indicated by lower response rates, suggesting part-time faculty did not feel comfortable responding to the survey, did not believe they had the time to respond, did not believe they would provide sufficient answers, or did not see the value of the survey (Nunley, Bers & Manning, 2011).

Based on the findings in this study, CCCS institutions appear to have placed adequate resources and support mechanisms in place to elicit some engagement from part-time faculty, but the infrastructure to support those functions may not be as consistent and available as those for full-time faculty. Increased communication from administration about expectations was the most commonly requested or referred-to phrase in commentary, indicating all CCCS faculty wanted guidance and clarity about how to best serve their students with respect to learning outcomes assessment practices.

Faculty Voice

Some faculty resistance to LOA practices was evident in commentary; e.g., "The push is on for all students to pass, no matter what! This devalues all the work I put into ensuring students are actually learning something." Another participant claimed,

> Since the mid-80s, when they started this idiocy with K-12, I got advanced degrees in part to avoid this BS, but it has caught up with me at a CO state 2-yr college, due to conservative legislators and their followers who don't believe in public education and want educators of all stripes to have to "justify" their existence. But of course the "tenured radicals" of the sixties brought this upon themselves, by being too cocky for decades about how they taught their politics in the classroom.

And finally,

> I receive ZERO institutional input on teaching or assessment. It is only my "gut" feeling, based on 30 years of teaching, that I know either students have learned or my teaching is effective. I don't know if I need to improve

> or not, but think all the hype about assessment is unnecessary when we already do it every single day.

These perspectives suggested that that some CCCS faculty felt frustration and even hostility towards LOA processes, although the practices themselves did not appear to be their main concern, but rather the political nature in which assessment appeared to be engulfed. Commentary was not tracked by faculty status, thus it was unknown if the comments came from full-time or part-time faculty.

The majority of comments, however, reflected a positive attitude toward LOA practices; e.g., "Outcomes assessment gives me a much greater understanding of my students' progress throughout the course. Otherwise, I wouldn't know they were learning!" Additional comments included,

> The quality of discussion, questions students ask, students' ability to explain, apply, and discuss implications are all methods that help me understand if students have learned. Communication in a variety of forms (artifacts, essays, group discussion, reflective writing, write-to-learn activities, etc.) demonstrates complex thinking, so I know they have met outcomes

and "Assessment is part of teaching. We don't use it to score points with anyone but students so we can help them learn in the best ways possible."

CCCS part-time faculty expressed a definitive interest in training and development opportunities in LOA methods and how to use assessment data to improve their teaching and student learning. Faculty also denoted interest in further development and opportunity to implement practices that provide evidence of learning. Increased

communication from administration about expectations was the most commonly referred-to phrase, indicating CCCS faculty also wanted guidance and clarity about how their practices related to institutional goals or program success. Faculty commentary for Research Questions 4 is presented in Appendix BB.

In order to best address the misalignment in perspectives between academic leaders and faculty regarding the ability of the 12 institutional conditions to increase faculty engagement with assessment, and the gaps in practice concerning how faculty use, interpret, and communicate LOA data to improve teaching and learning, CCCS institutional leadership must continue current efforts to identify and adopt methods that demonstrate that institutional effectiveness in learning outcomes assessment has been achieved. Designing effective approaches first includes a thorough understanding of assessment principles and institutional goals which lend themselves to establishing appropriate planning, action items, and indicators of success and/or effectiveness (Banta, Jones, & Black, 2009; Middaugh, 2009). One such approach includes 'Closing the Assessment Loop' (Banta & Blaich, 2011), a model for assessment planning that outlines how an institution can effectively move through the assessment cycle.

Closing the Assessment Loop

In 2008, Barbara Wright, Senior Commission for the Western Association of Schools and Colleges (WASC), introduced *The Assessment Loop* model that serves as a feedback loop to guide institutions in planning, actualizing, and implementing assessment processes and programs (see Figure 10). The model encompasses four stages that inform institutions, programs, and faculty about how effective their assessment plans are in moving toward the realization of their goals: (1) Establishing goals and questions about

assessment, (2) Gathering evidence from assessment activities, (3) Interpreting evidence from assessments, and (4) Using assessment evidence to make changes to courses, curricula, programs, and institutional processes.

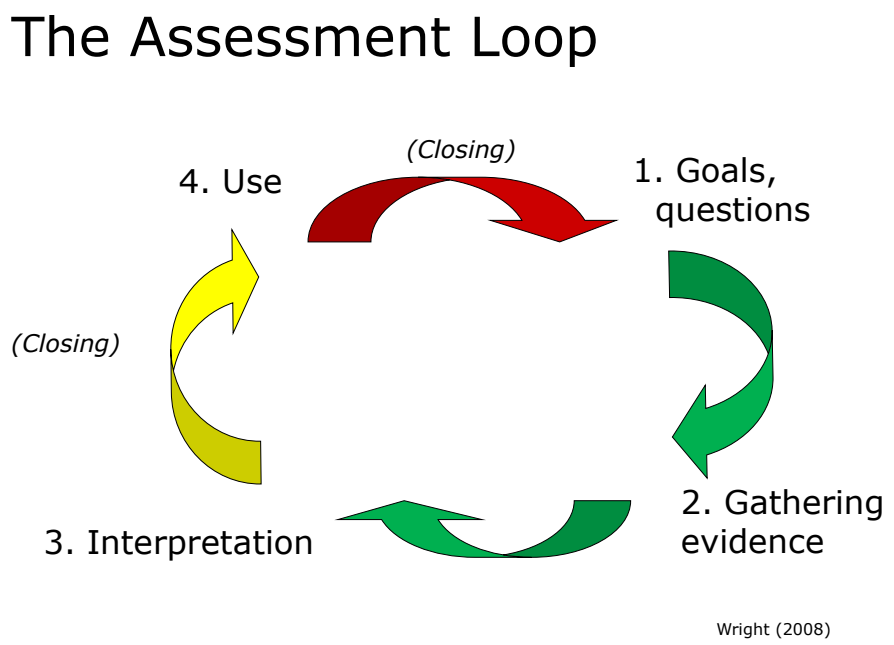

Figure 10. The assessment loop.

The phrase "Closing the Assessment Loop" was later coined by Banta and Blaich (2011) to aid in understanding how to move from planning stages to using assessment data to make necessary changes, extending student learning evidence outward from the classroom to the program to the institution, and identifying potential gaps that can prevent the achievement of outcomes. The model colors presented in Figure 10 were altered by the researcher in Stages 3 and 4 to identify where faculty appear to be slowing down (yellow) and stopping altogether (red), indicating where CCCS institutions should focus attention in their assessment processes in order to close the assessment loop. Wright (2008), Middaugh (2009), and Banta and Blaich (2011) indicate this is precisely

where most two-year institutions currently find themselves with respect to assessment processes at the classroom, program, and institutional levels, and must work collectively to ensure the loop is closed in order to demonstrate effectiveness of assessment processes.

In applying Wright's (2008) model to the findings in this study, results suggest that CCCS faculty are engaged in Stages 1 and 2 effectively, but clearly indicated that they need assistance with interpreting assessment evidence to improve their teaching and student learning (Stage 3), and using evidence to demonstrate student learning to the greater institutional community (Stage 4). Specifically, results from RQ4 subquestion a. reflect that while still primarily engaged in traditional LOA methods, faculty (full- and part-time) are establishing LOA goals and outcomes, and have adopted progressive and/or contemporary assessment practices designed to increase student learning; e.g., use of computer technology, group projects, and self or peer assessments. Additionally, faculty indicated in subquestion b. that the primary reason they engage in LOA practices is to increase student success, reflecting that Stage 1, *Establishing Goals for and Questions about Assessment* (tied directly to student learning) are being fulfilled. Results from RQ4 subquestion c. indicate that Stage 2, *Gathering Evidence*, is also being successfully addressed as faculty indicated they are collecting evidence of student learning from both formative and summative measures; e.g., rubrics, student feedback, and grades/scores, and from direct measures; e.g., individual performance reports and/or grade improvements.

Results from RQ4 subquestion d, however, suggest that Stage 3, *Interpreting Evidence*, is not well-understood or practiced by CCCS faculty, as responses reflected that course evaluations were used most often when determining if students had learned or

if changes needed to be made to their teaching. While informative, course evaluations are indirect measures that often yield little to no information about the effectiveness of teaching, and/or individual student learning (Blaich & Wise, 2011; Maki, 2010; Suskie, 2009). RQ4 subquestion d. also supports the notion that Stage 4, *Using Evidence*, is not sufficiently addressed, as faculty indicated they were unfamiliar with how to apply data results to improve their teaching and/or student learning or communicate evidence of learning to the larger institutional community, and, as such, could not provide transparency of practices. CCCS faculty also claimed profusely that they need and want more development and training in interpreting data to improve teaching and learning, highlighting the premise that faculty themselves believe they are ill-equipped to interpret and use student learning data, thus Stage 4 illustrates a gap in practice. Suggestions to close the loop for the Colorado Community College System.

Based on the findings in this study, it appears that CCCS institutions would first benefit from establishing more transparent communication systems regarding LOA practices that flow directly to and from all institutional constituents, illuminate faculty LOA practices in their courses, and allow for input and participation from contingent faculty. The National Center for Learning Outcomes Assessment (NILOA) suggests establishing a centralized website wherein faculty can make contributions regarding their practices and identify cultural conditions that incentivize them to engage more fully with course- and program-level LOA practices (Jankowski & Provezis, 2011). Such websites also provide immediate documentation of internal practices that can be used to communicate with internal or external partners; e.g., accrediting bodies, employer and industry partners, and/or non-academic units on campus. Nunley, Bers, and Manning

(2011) and Baldwin and Wawrzynski (2011) further suggest that decision-making committees, self-studies, focus groups, surveys, and/or strategies designed to collect and disseminate information regarding the status of learning outcomes assessment on each campus must also include part-time faculty representation in order to demonstrate that the largest segment of instructors are informed, educated, and experienced in LOA practices.

Additionally, an intra- and inter-institutional protocol similar to the Valid Assessment of Learning in Undergraduate Education (VALUE) and/or the Collaborative on Authentic Assessment of Learning (CAAL) (AAC&U, n.d.) projects, wherein one entity hosts online space for institutions to upload, share, and discuss their campus assessment results using the VALUE rubrics, could benefit CCCS part-time faculty by providing multiple opportunities for faculty to collaborate, and by expanding communication across campuses regarding common instruments, compelling findings, potential benchmarks for student success, and best practices of assessment using rubrics and e-portfolios projects without added expense. The CCCS central office could serve as a clearinghouse to the 13 colleges and CCCOnline for such purposes.

Second, to address the CCCS faculty desire for training in how to use data or evidence of student learning to improve teaching and student learning, Andrade (2011) claims that institutions should start with faculty themselves to create faculty development or enrichment systems wherein participation is based on addressing human resource, instructional, structural, and political considerations. While CCCS institutions possess a cultural phenomenon wherein academic leaders have more experience in learning outcomes assessment than do faculty, Twombly and Townsend (2008) claim that part-time faculty tend to be more responsive to initiatives led by other faculty, particularly

those in their own discipline, thus communication with CCCS part-time faculty should extend from department chairs or discipline coordinators rather than deans or directors. Hutchings (2011) also states that all assessment processes should be faculty- rather than administratively-driven in order to develop a deep connection to improving student learning. Banta and Blaich (2011) also suggest that "encouraging the use of assessment data to guide change is much more about collaborating with colleagues to decide what to improve than it is about measurement" (p. 23).

Building such a system begins with conducting a needs assessment of faculty perspectives, a function that the EFEA instrument can address, followed by development of programs delivered by internal experts (McClenney, 2004). The Research and Planning Group for the California Community Colleges (2013) reports that in response to severe funding restrictions, California Community College System offers alternative incentives to contingent faculty to engage in such as allowing part-time faculty to select the time and day their courses are offered, offering pay increases per contract rather than stipends to attend development sessions, and building knowledge of and experience with student learning outcomes assessment into hiring practices, reward and recognition programs, and pay and promotion policies; e.g., monetary incentives frontloaded in contracts rather than used as supplemental incentives to attend development sessions, and performance expectations clearly stated in contracts that all faculty are required to attend or participate in development activities dedicated to learning outcomes assessment at least once a year to remain eligible for future teaching assignments.

Finally, the New Leadership Alliance (2012) proposes four strategies to help faculty, staff, administration, and students understand how to use data and/or student

learning evidence to demonstrate effectiveness: (1) establish well-articulated policies and procedures for using student learning data that are publicized and applied throughout the institution including pay and promotion policies, (2) use student learning evidence to make recommendations for improvement of academic and co-curricular programs, (3) establish a process for discussing and actualizing these recommendations, (4) review and evaluate the impact of evidence-based changes in programs and practices. CCCS institutions could ensure internal partnerships with institutional research and institutional effectiveness offices are secured to promote and provide strategies, trainings, information forums, and opportunities to practice using LOA methods, especially at the classroom level, to further develop a responsive evaluation system that includes all campus constituents (Bers, 2008).

In sum, CCCS faculty and academic leaders indicated that appropriate systems were in place to encourage and support faculty engagement (functioning), and that those systems were sufficient to meet broader institutional goals for learning outcomes assessment (effectiveness), but how to increase engagement from faculty (influence), particularly part-time faculty, and how to demonstrate that those increases were effective, were not fully aligned with institutional strategies. Because faculty scores were lower than academic leader scores on the INFLUENCE subscale, it is apparent faculty did not believe the institutional conditions in place at their institutions influenced their full engagement with LOA practices, thereby exposing a misalignment between practices intended to meet institutional goals for student learning outcomes assessment. Gaps that emerged in RQ4 between faculty LOA practices and expectations also reflected that goals for effectiveness may not be fully addressed in current assessment processes.

Subsequently, CCCS leadership must continue to examine whether or not the conditions designed to increase faculty engagement with LOA practices are effective in order to close the gap between the two groups, and to identify conditions that actually *do* increase faculty engagement. The EFEA instrument is the only known measure designed to glean such information at this time. While this study has provided information regarding what CCCS faculty and academic leaders believe about the 12 conditions, and their relationship to faculty engagement with assessment, CCCS college presidents, vice presidents for instruction, and assessment and institutional research/effectiveness agents must actualize the results in a manner consistent with their institutional mission objectives, budget constraints, and campus culture. Institutional leadership can guide this process while ensuring that faculty lead the planning, development, and implementation of all assessment objectives.

These objectives can be accomplished by: (1) improving communication systems by utilizing technology in a variety of input and output methods; (2) partnering with other two- and four-year institutions and professional organizations to provide faculty with desired levels of discipline and peer collaboration; (3) increasing faculty involvement in the planning and development stages of assessment processes at all levels within the institution; (4) re-designing pay and promotion practices for contingent faculty that require training and participation; (5) re-inventing policies and procedures for use of data and/or student learning evidence; and (6) including students in the development and implementation process to ensure the primary recipients of any assessment processes provide input into the collective structure.

More specifically, CCCS campus institutional effectiveness and/or assessment leaders can collaborate with professional organizations and accrediting bodies to gain access to online assessment communities; e.g., the VALUE project (Banta, Griffin, Flateby, & Kahn, 2009), and the National Institute for Learning Outcomes Assessment's (NILOA) online assessment sharing portal. Such resources provide faculty with peer and discipline support, dialogue, and reference materials, allow for the interchange of ideas, rubrics, and assessments methods beyond internal departmental methods, and link local faculty members in collaborative work to develop shared norms and teaching capacity in a growing system of assessment. Such projects open communication and bridge connections with other institutions, but also give faculty and institutional leadership opportunity to determine if such strategies or conditions are beneficial to the internal culture.

Increasing faculty participation in assessment planning, development, and implementation can be accomplished by requiring participation from a certain percentage of part-time faculty from each department or program. While every part-time faculty member would not need to be involved in every committee, representation on assessment committees should reflect the full- to part-time faculty ratio of the program, thus extending responsibility from full-time faculty and department chairs to include part-time faculty (Skolits & Graybeal, 2007).

Presidents and vice presidents of instruction (VPI) can support and even drive changes in employment contracts for part-time faculty that require, rather than request, participation in development activities. Results from this study suggest that part-time faculty are not afforded the same opportunity to engage with assessment as full-time

faculty primarily because job expectations differ, leading part-time faculty to remain on the fridge of essential internal practices that impact student learning. VPI's in particular can initiate changes that require part-time faculty to attend a minimum of two training sessions per year by building such requirements into contracts. Incentives can also be adopted that commit to further employment opportunities for part-time faculty for participating in development activities rather than payment to attend; e.g., stipends can be awarded in their next contract, or as mentioned previously, the California Community College system provides contingent faculty with more courses and/or desired schedules.

Campus presidents, VPI's, and institutional effectiveness/assessment leaders can also address the gap in faculty knowledge and application base concerning how to use assessment data to improve teaching and learning by building training and development responsibilities into job descriptions for institutional effectiveness and assessment positions. As budget constraints are likely to be a persistent issue for community colleges, assessment and institutional effectiveness professionals should be hired that are capable of providing training in data collection, use, and management, and providing counsel to presidents and vice presidents regarding the usefulness and applicability of software programs that deliver such training online. Assessment data collected at the institutional and program levels should also be made available to the campus community in order to maintain an open flow of communication and request input from those invested in meeting assessment outcomes. Assessment leaders should work closely with VPI's and instructional deans to build internal protocols to share and discuss assessment results with internal and external constituents to further demonstrate transparency of practice.

Finally, campus assessment leaders and instructional deans should be working directly with student affairs and student development leaders to encourage student participation in LOA practices, policies, and programs. Students provide valuable feedback regarding their growth and development in academic and campus environments, both of which can provide deeper, more meaningful feedback to faculty about individual and collective learning experiences. Results from this study indicated that the primary reasons CCCS faculty engage with LOA practices is to improve teaching and student learning; therefore, campus leaders must ensure students play an active role in assessment processes at all levels by developing and implementing an infrastructure that supports communication and resources linked to priorities. Some of the community colleges in CCCS indicated examples of taking this idea one step further by requiring campus-wide participation in the institutional effectiveness process. Expectations that all employees, students, and campus affiliates are responsible for attaining student learning outcomes are integrated in strategic planning documents and mission statements, incorporated into job descriptions, and addressed in financial planning documents, promulgating the premise that the entire community is responsible for student learning and achievement of outcomes.

Findings of this study were consistent with findings from the Wabash study (Blaich & Wise, 2011) and confirmed other research studies (Middaugh, 2009; Miller, 2012; Skolits & Graybeal, 2007; Wehlberg, 2007) that illustrated faculty and institutions do not necessarily struggle with faculty engagement with learning outcomes assessment, but rather, problems are generally steeped in discerning how to make connections between assessment results and student learning, how to use data to inform teaching

practices, and how to disseminate evidence of student learning and improved teaching to the larger community for accountability purposes.

Adopting communication systems that aid faculty in presenting their LOA practices from the learning environment outward to respective programs and institutions, and ensuring faculty enrichment programs are inclusive of all instructors, would likely provide CCCS institutions with value-added tools to ensure gaps in practices are abridged and concerns about part-time faculty participation are dispelled. These actions are considered integral to the culture of evidence Blaich and Wise (2011) found necessary to addressing and closing gaps between faculty and their institutions regarding effective faculty engagement with learning outcomes assessment, and to closing the loop between planning processes and assessment processes (Banta & Blaich, 2011; Middaugh, 2009).

Implications

Higher mean scores for academic leaders and statistically significant differences on the INFLUENCE scale indicated that different levels of confidence existed between CCCS faculty and academic leaders about how much the 12 institutional conditions actually influenced faculty engagement with learning outcomes assessment. This outcome supports the SoA literature's position (Banta & Blaich, 2011; Banta, Jones, & Black, 2009; Gray, 2010; Hutchings, 2010; Middaugh, 2010; Nunley, Bers, & Manning, 2011; Priddy, 2007) that faculty must be included in decision-making about institutional assessment practices and processes, as they provide essential contributions to aligning all types of assessment activities, subsequently ensuring institutional effectiveness and accountability for student learning. The EFEA is an effective tool for decision-makers in determining what resources to invest in, how to distribute those resources, and how to

evaluate their effectiveness in eliciting more engagement in LOA practices from faculty. A more comprehensive understanding of internal perspectives can aid institutional leadership in determining which strategies faculty perceive as instrumental to solicit their participation.

The EFEA instrument also illuminates assessment practices that faculty engage in, the rationale behind selection of a particular method, and in what areas development or enrichment opportunities may be lacking, all of which provide transparency regarding areas wherein faculty might need assistance; e.g., aligning their practices to institutional goals or improving their teaching practices and/or student learning. Understanding faculty LOA practices also allows institutions to discern if faculty practices are in alignment with institutional goals for student learning and to identify and close gaps between classroom, program, and institutional assessment. If, for example, an institution discovers that its faculty predominantly uses traditional, summative, or standardized assessment methods to gauge student learning (e.g., end-of-course grades, scores on final exams, or course evaluations), but their assessment plan calls for contemporary, formative, or learner-centered practices, a misalignment could have implications for effectiveness or accountability measures in that accreditation review panels could perceive that standards or quality measures were not met. Illuminating faculty, program, and institutional assessment practices ensures institutions as a whole are following their assessment plans, demonstrates transparency of practices to constituents, and allows institutions to realize their mission goals (Middaugh, 2009).

With respect to the alleged problem that the predominant use of part-time faculty erodes instructional quality (Arum & Roksa, 2011; Bok, 2006; Keeling & Hersh, 2012),

findings from the 2011 Wabash study, and other recent studies on community college effectiveness (Baldwin &Wawrzynski, 2011; Nunley, Bers, & Manning, 2011; Skolits & Graybeal, 2007), emphasize that drastic changes in the use of part-time and/or adjunct faculty in community colleges must be made if transparency and accountability regarding student learning outcomes are to be achieved. Baldwin and Wawrzynski (2011) go so far as to state that all contingent faculty positions should be converted to full-time positions, as "very high exposure to part-time faculty in community colleges reduces the chance that students with an initial propensity to transfer to a 4-year college will actually do so" (p. 1505). Nunley, Bers, and Manning approach the issue from a more fiscally-sensitive position, suggesting that not all institutions will be able to make such adjustments, but *can* ensure that all faculty are fully equipped to effectively utilize LOA practices in their courses by requiring consistent and recurring professional development for all faculty, and by adopting a system-wide communication structure that informs internal and external constituents about expectations for quality instruction and learning outcomes.

If CCCS leadership adopts the strategies suggested here, implications would include more cohesive assessment processes that embrace all constituents impacted by internal decision-making, particularly students. Assessment practices that include input from part-time faculty demonstrate an institution is fully committed to ensuring students receive the highest quality instruction and that effectiveness indicators for student learning are being met. Part-time faculty are also often local taxpayers and employers that can aid the institution in establishing appropriate indicators of student success and assist with illuminating where gaps in skills or industry standards exist. Demonstrating

commitment to this employment sector builds rapport and investment in return, wherein students once again benefit from inclusive processes.

Findings from this study coincide with the emerging literature cited above that demands contingent faculty populations be afforded the same opportunities and expectations as full-time faculty in all areas of instructional support, particularly in assessment techniques wherein transparency is urgent and necessary to demonstrate effectiveness. It is evident that community college scholars, higher education assessment experts, and adjunct faculty advocates agree that issues of instructional quality and student learning success in two-year institutions will begin to see improvement if part-time faculty are brought into the fold of the institution's support structure for assessment. Findings from this study also reflect that while CCCS institutions may have the necessary conditions in place to elicit greater faculty engagement with assessment, and faculty are engaged with assessment, inclusion of part-time faculty in the development and implementation of LOA practices is not evident, and therefore effectiveness may be jeopardized. Whether effectiveness is measured through completion, persistence, retention, transfer, goal attainment, or student learning success, if CCCS institutions bring their contingent faculty populations into assessment planning and practices, and provide consistent and available opportunities to engage in development opportunities, students and institutions reap the benefits of attaining these measures.

Limitations

Although limitations were presented in the Introduction section of this study, this section provides additional limitations that emerged from the outcomes of the study as a whole. The EFEA measure was a newly constructed theoretical model and instrument,

thus additional testing of its psychometric properties should be conducted to further establish empirical evidence of theoretical assumptions and to evaluate inferences made in this study. Predicted correlations for convergent validity were not established due to the use of research questions rather than hypotheses, nor was discriminant validity utilized as the researcher believed including a third scale for participants to respond to would have negatively impacted response rates. While Furr and Bacharach (2008) describe discriminant validity as essential to assess if convergent validity coefficients are adequate, overall construct validity was also estimated through the PFA, which demonstrated sufficient evidence of construct validity for all three scales. The EFEA model was tested only within Colorado two-year, public postsecondary institutions, therefore generalizability to other institution types or locales was restricted to this population. Response rates produced a smaller sample than anticipated, thus more faculty participation may have altered the outcomes, particularly increased part-time faculty representation.

The 12 institutional conditions used in this study were grouped together according to the researcher's understanding of the synthesis of the constructs described in the SoA literature. Partialing out the conditions from the FUNCTION and INFLUENCE variables into individual variables may produce different results with respect to associations, factor loadings, and/or predicting Effectiveness. Academic leaders were not asked what steps they underwent when adopting support mechanisms to ensure adequate faculty engagement with LOA practices. Developing a full account of each CCCS institution's student learning outcomes assessment processes could have provided clarity about why faculty did not agree with academic leaders that the 12 conditions increased their

engagement; e.g., were faculty involved in the decision-making processes concerning resources or conditions that motivate or influence greater engagement?

Suggestions for Improvement of EFEA Instrument

First, the high means attained for all EFEA scale scores and low variance explained in the multiple regressions indicated that more diversity in the items could lead to greater variability in scores, and possibly higher variance explained. Item wording for the total scale and subscales could be altered in future studies to reflect more thought-provoking language, particularly on the EFFECT subscale which demonstrated the highest total scale scores for both groups. Also, the number of items or length of wording for several items on the FUNCTION and INFLUENCE subscales could be reduced in an attempt to prevent participants from skipping items.

Second, non-response bias for the total population for Gender reflected that actions to solicit more male respondents were necessary. Dillman (2007) and Sue and Ritter (2007) found that males will participate more often in a survey if they are personally or professionally interested in the topic, whereas females are more likely to engage if they perceive social benefit or helping behaviors, while Kwak and Radler (2002) claim that males tend to respond to web-based surveys more often than females for reasons related to job performance and expectation. Therefore, specific strategies to solicit more male respondents could include: (1) demonstrating how survey results could aid the department or discipline in meeting program assessment requirements; e.g., transparency of assessment practices that peers utilize, and (2) staging the benefits of participation in terms of a personal or professional contribution to their discipline or

teaching practice; e.g., results could lead to changes in how resources are allocated to faculty development opportunities.

Greater participation from part-time faculty was also deemed necessary, thus, similar to male solicitation strategies, the American Federation of Teachers-Higher Education (2010) suggests that adjunct faculty response rates tend to rise when they perceive participation in surveys as beneficial to their employment or supplemental to their knowledge about a particular subject that may increase their opportunities for employment. Survey language could be adapted to reflect benefits or rewards that adjunct faculty seek; e.g., participation serves as developmental or educational credit, or a financial rather than an electronic device is offered as an incentive. Additionally, a fifth category could be added in the Engagement items to include a question designed to ask all faculty directly about factors that would increase their engagement with LOA practices. Providing examples would be necessary to ensure participants understand the definition(s) of terms. The number of response choices in the Engagement items could also be reduced from 15 to entice more responses. Finally, a neutral response option could be added to the rating scale to offset the high positive agreement that emerged from this sample, thus creating more variability in responses and possibly higher variance in scores.

Future Research

A substantial theoretical basis for the three constructs needs to be fully developed. While the principal factor analysis demonstrated unambiguous loadings, the constructs could be converged with higher education organizational behavior or intrinsic motivational theories to further estimate validity. Other types of validity estimates would

also strengthen the empirical inferences made in this study; e.g., concurrent, predictive, known groups, or consequential (Messick, 1995). Additional exploration of the factors that emerged in this study using confirmatory factor analyses methods could also be performed to further estimate construct validity and to determine if the EFEA instrument holds the same structure across other populations; e.g., four-year institutions within Colorado or other two-year institutions outside the state. Future factorial methods may also consider oblique rotation as the three underlying constructs could be hypothesized as related to each other, and as such, may load to different factors than those present in this study, possibly changing construct validity estimates.

Further exploration into differences or associations between full-time and part-time faculty on the EFEA total scale and three subscales could yield more information about faculty LOA practices, reasons why faculty either resist or engage in assessment, and aid institutional leadership in developing a deeper understanding of the conditions that elicit greater faculty engagement in LOA practices and thus achievement of effectiveness indicators. Two-year institutions in particular may find investigating the conditions that elicit greater engagement from part-time faculty would assist in measuring institutional effectiveness, as they tend to employ the largest segment of adjunct and affiliate faculty in public postsecondary education. Data extracted from this study could be examined and re-assessed to respond to this inquiry.

Additionally, response rates indicated that more full-time than part-time faculty responded to this survey, suggesting full-time may identify more closely with CCCS, their campus President, and may possess more understanding of LOA practices and benefits. Future research should also include methods to elicit greater response rates from

faculty populations such as presenting survey language in specific academic disciplines and/or outlining benefits to teaching and learning practices (Kwak & Radler, 2002). The EFEA instrument could also be used to measure alignment of perspectives or attitudes in a specific college rather than the composite of colleges performed here in order to identify attitudes about internal and external conditions that have been adopted to ensure faculty engagement; e.g., Arapahoe Community College (ACC) faculty practices align with ACC program outcomes, ACC strategic plan, and ACC institutional effectiveness indicators.

Finally, the EFEA instrument could aid campus decision-makers in developing more effective strategies that target part-time faculty. Minor modifications to the instrument would allow campus leaders to make decisions about strategies for inclusion for assessment resources, training, and policies need adjustment; e.g., participating in LOA training could be a requirement for employment. The EFEA could also be used to gauge differences and/or similarities between faculty and other groups about faculty engagement with learning outcomes assessment; e.g., students, alumni, or employer partners. EFEA data analysis of student perspectives could provide valuable information concerning whether or not student populations believed the 12 conditions increased faculty engagement and if their learning consequently improved.

Conclusions

Findings from this study reflected that the EFEA instrument provided an appropriate vehicle to discern if alignment existed between CCCS faculty and academic leader perspectives about institutional and faculty assessment practices, illustrate where similarities and differences existed between these groups regarding decisions about how

student learning outcomes assessment was supported and measured across CCCS institutions, and provide a reliable and valid tool to gauge differences in attitudes regarding resources, communications, and support strategies that reportedly must be in place when developing effective LOA programs and processes among institutions. The EFEA also helped identify potential gaps between academic leader and faculty perspectives about strategies or conditions that potentially increase faculty engagement in LOA practices and aided in achieving LOA effectiveness indicators, demonstrated that the three constructs could be measured quantitatively as indicated by the results of the PFA, *t*-tests, correlations, and multiple regression analyses, and determined that both groups perceived the Functioning and Influence constructs were valid predictors of effective assessment indicators.

Moreover, the EFEA instrument aided in identifying the LOA practices CCCS faculty used, why they selected these practices, what evidence they used to assess student learning, and what types of data informed their teaching practices. Illuminating these practices and rationale provided critical knowledge about where faculty stood with regard to use of LOA in their courses and if there were gaps in expectations between faculty and their institutions, particularly for part-time faculty. The EFEA also provided a venue for faculty to highlight their practices and express their needs with respect to improving teaching and learning through assessments methods, and compared full-time and part-time faculty attitudes about their LOA practices to discern what, if any, institutional conditions influenced their decision-making processes.

This study found that CCCS faculty and academic leaders agreed that the 12 institutional conditions described in the Scholarship of Assessment literature as

increasing faculty engagement with learning outcomes assessment were in place and functioning at the 13 campus-based institutions and CCCOnline. CCCS faculty and academic leaders did not agree that the 12 conditions increased faculty engagement with LOA, reflecting a slight misalignment in institutional and faculty LOA practices. Both groups agreed that if the 12 conditions were functioning and increased faculty engagement, then effectiveness indicators were achieved and could be predicted. Further, although traditional LOA practices emerged as the predominant methods in which to gauge student learning , CCCS faculty were engaged in LOA practices considered by the literature to improve student learning; e.g., use of rubrics, integration of technology, skills-based assessments, and group projects.

Faculty also indicated they were transitioning from traditional, summative assessment methods to more contemporary, formative methods, and it was clear that student success was the primary motivator for engaging in LOA practices. Part-time faculty demonstrated they were not as engaged in LOA practices as full-time faculty by responsiveness to the Engagement items of less than half that of full-time faculty, and through commentary that identified their employment status. All faculty expressed clearly that more development, training, and/or opportunities to practice and collaborate in two primary areas would increase their knowledge of and experience with LOA practices: 1) how to use LOA methods to improve teaching and learning, and (2) how to use data/evidence to make connections to broader institutional goals.

As mentioned previously, if CCCS continues to employ part-time faculty in a similar fashion as the national trend for community colleges, they must examine whether or not their part-time faculty are engaged, how they are engaged, and how they can elicit

greater engagement with assessment. Strategies to elicit more involvement in LOA practices from part-time faculty could be developed and adopted if decision-makers can pinpoint and customize conditions that specifically motivate or encourage contingent faculty. CCCS part-time faculty indicated they want to improve their teaching, they want more training and development, and they want to better understand how assessment impacts student learning. This reciprocal investment in student learning bodes well for CCCS to close the assessment loop and ensure that adjunct populations receive the same opportunities to succeed as full-time faculty in order to meet quality indicators and achieve institutional effectiveness. Two-year institutions that invest in faculty involvement and leadership in assessment will pave the way for ensuring student learning is at the forefront of institutional effectiveness strategies, possibly resolving broader issues of completion, quality instruction, and student learning success.

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Appendices

Appendix A: FSSE Supplemental Survey

FSSE 2009 Additional Questions—Campus Assessment & Scholarship of Teaching and Learning Questions

This concludes the core survey.

Your institution requests that you please take 3-5 minutes to answer a few additional questions. Your responses will be confidential and anonymous to your institution.

[Programmer note: Page break]

Colleges and universities increasingly use surveys and other measures (e.g., portfolios) to gather information about student educational experiences and learning. The questions below ask about such assessment efforts at your institution.

1. **To what extent is your institution involved in student assessment efforts?**

   (4 = Very much, 3 = Quite a bit, 2 = Some, 1 = Very little)

2. **How effectively does your institution disseminate the findings of its assessment efforts to faculty?**

   (5-point scale; anchors: 5 = Very effectively, 1 = Not at all effectively)

3. **In general, how useful to you are the findings from your institution's assessment efforts?**

   (5-point scale; anchors: 5 = Very useful, 1 = Not at all useful)

4. **To what extent are results from your institution's assessment efforts used to inform the following?**

   (4 = Very much, 3 = Quite a bit, 2 = Some, 1 = Very little)

   a. Institutional activities aimed at improving teaching and learning

   b. Your department's activities aimed at improving teaching and learning

5. **To what extent is evidence gathered by faculty members in their courses used to inform the following?**

   (4 = Very much, 3 = Quite a bit, 2 = Some, 1 = Very little)

   a. Institutional activities aimed at improving teaching and learning

   b. Your department's activities aimed at improving teaching and learning

6. **To what extent are faculty members at your institution encouraged to do the following?**

   (4 = Very much, 3 = Quite a bit, 2 = Some, 1 = Very little)

   a. Systematically collect information about the effectiveness of their teaching beyond end-of-term course evaluations

   b. Use assessment findings to inform changes made to their courses

   c. Publicly present (e.g., lectures or workshops) information about teaching or learning

   d. Publish on teaching and learning

   e. Collaborate with colleagues on improving teaching and learning

7. **To what extent have you incorporated the following into your work?**

   (4 = Very much, 3 = Quite a bit, 2 = Some, 1 = Very little)

a. Systematically collecting information about the effectiveness of your teaching beyond end-of-term course evaluations
b. Using assessment findings to inform changes made to your courses
c. Publicly presenting (e.g., lectures or workshops) information about teaching or learning
d. Publishing on teaching and learning
e. Collaborating with colleagues on improving teaching and learning

8. **When you make changes to your courses, what kinds of information inform your decisions?**

   (Write in)

9. **Have you received funding to conduct scholarly inquiry about teaching and learning? (Mark all that apply)**

   (Yes, from sources external to my institution (e.g. foundations or government agencies), Yes, from sources internal to my institution)

10. **Have you served in an administrative role or on a faculty committee that focused on assessment of students' educational experiences and learning?**

    (1= Yes; 0 = No)

Appendix B: Institutional Support for Student Assessment Subscales

Faculty Evaluation and Rewards

1 = Not done at all, 2 = Done in a few depts., 3 = Done in some depts., 4 = Done in many depts., 5 = Done in most depts.

1. Faculty evaluation for promotion considers evidence of student performance in their classes (not just student teaching evaluation)

2. Faculty evaluation for annual salary and merit increases incorporates evidence of student performance

3. Faculty scholarship on or innovative uses of student assessment is considered in promotion, tenure, or salary reviews

4. Faculty willingness to use or to participate in student assessment activities is considered in faculty promotion, tenure, or salary reviews

5. Faculty receive public recognition or awards for innovative or effective use of student assessment

6. Faculty hiring process considers experience or skill in student assessment

7. Faculty are encouraged to assess student learning in their classes

Institutional Actions

1 = No action or influence unknown; 2 = Action taken, data not influential; 3 = Action taken, data somewhat influential; 4 = Action taken, data very influential

1. Revising your undergraduate academic mission or goals

2. Designing or reorganizing academic programs or majors

3. Designing or reorganizing student affairs units

4. Allocating resources to academic units

5. Modifying student assessment plans, policies, or processes

6. Deciding faculty promotion and tenure

7. Deciding faculty salary increases or rewards (release time, travel funds, etc.)

8. Revising or modifying general education curriculum

9. Creating or modifying student out-of-class learning experiences (e.g., internships, service learning)

10. Creating or modifying distance learning initiatives

11. Modifying instructional or teaching methods

12. Modifying student academic support services (e.g. advising, tutoring)

Institutional Impacts

1 = Not monitored, do not know; 2 = Monitored, negative impact; 3 = Monitored, no known impact; 4 = Monitored, positive impact

1. Affected campus discussions of undergraduate education

2. Contributed to faculty satisfaction

3. Contributed to faculty interest in teaching

4. Led to changes in instructional or teaching methods used

5. Contributed to student satisfaction

6. Affected student retention or graduation rates

7. Affected student grade performance

8. Affected student achievement on external examinations (e.g., professional licensure, GRE)

Appendix C: AAHE Principles of Good Practice for Assessing Student Learning

AAHE ASSESSMENT FORUM

9 Principles of Good Practice for Assessing Student Learning

1. **The assessment of student learning begins with educational values.** Assessment is not an end in itself but a vehicle for educational improvement. Its effective practice, then, begins with and enacts a vision of the kinds of learning we most value for students and strive to help them achieve. Educational values should drive not only *what* we choose to assess but also *how* we do so. Where questions about educational mission and values are skipped over, assessment threatens to be an exercise in measuring what's easy, rather than a process of improving what we really care about.
2. **Assessment is most effective when it reflects an understanding of learning as multidimensional, integrated, and revealed in performance over time.** Learning is a complex process. It entails not only what students know but what they can do with what they know; it involves not only knowledge and abilities but values, attitudes, and habits of mind that affect both academic success and performance beyond the classroom. Assessment should reflect these understandings by employing a diverse array of methods, including those that call for actual performance, using them over time so as to reveal change, growth, and increasing degrees of integration. Such an approach aims for a more complete and accurate picture of learning, and therefore firmer bases for improving our students' educational experience.
3. **Assessment works best when the programs it seeks to improve have clear, explicitly stated purposes.** Assessment is a goal-oriented process. It entails comparing educational performance with educational purposes and expectations --

those derived from the institution's mission, from faculty intentions in program and course design, and from knowledge of students' own goals. Where program purposes lack specificity or agreement, assessment as a process pushes a campus toward clarity about where to aim and what standards to apply; assessment also prompts attention to where and how program goals will be taught and learned. Clear, shared, implementable goals are the cornerstone for assessment that is focused and useful.

4. **Assessment requires attention to outcomes but also and equally to the experiences that lead to those outcomes.** Information about outcomes is of high importance; where students "end up" matters greatly. But to improve outcomes, we need to know about student experience along the way -- about the curricula, teaching, and kind of student effort that lead to particular outcomes. Assessment can help us understand which students learn best under what conditions; with such knowledge comes the capacity to improve the whole of their learning.
5. **Assessment works best when it is ongoing not episodic.** Assessment is a process whose power is cumulative. Though isolated, "one-shot" assessment can be better than none, improvement is best fostered when assessment entails a linked series of activities undertaken over time. This may mean tracking the process of individual students, or of cohorts of students; it may mean collecting the same examples of student performance or using the same instrument semester after semester. The point is to monitor progress toward intended goals in a spirit of continuous improvement. Along the way, the assessment process itself should be evaluated and refined in light of emerging insights.

6. **Assessment fosters wider improvement when representatives from across the educational community are involved.** Student learning is a campus-wide responsibility, and assessment is a way of enacting that responsibility. Thus, while assessment efforts may start small, the aim over time is to involve people from across the educational community. Faculty play an especially important role, but assessment's questions can't be fully addressed without participation by student-affairs educators, librarians, administrators, and students. Assessment may also involve individuals from beyond the campus (alumni/ae, trustees, employers) whose experience can enrich the sense of appropriate aims and standards for learning. Thus understood, assessment is not a task for small groups of experts but a collaborative activity; its aim is wider, better-informed attention to student learning by all parties with a stake in its improvement.
7. **Assessment makes a difference when it begins with issues of use and illuminates questions that people really care about.** Assessment recognizes the value of information in the process of improvement. But to be useful, information must be connected to issues or questions that people really care about. This implies assessment approaches that produce evidence that relevant parties will find credible, suggestive, and applicable to decisions that need to be made. It means thinking in advance about how the information will be used, and by whom. The point of assessment is not to gather data and return "results"; it is a process that starts with the questions of decision-makers, that involves them in the gathering and interpreting of data, and that informs and helps guide continuous improvement.

8. **Assessment is most likely to lead to improvement when it is part of a larger set of conditions that promote change.** Assessment alone changes little. Its greatest contribution comes on campuses where the quality of teaching and learning is visibly valued and worked at. On such campuses, the push to improve educational performance is a visible and primary goal of leadership; improving the quality of undergraduate education is central to the institution's planning, budgeting, and personnel decisions. On such campuses, information about learning outcomes is seen as an integral part of decision making, and avidly sought.
9. **Through assessment, educators meet responsibilities to students and to the public.** There is a compelling public stake in education. As educators, we have a responsibility to the publics that support or depend on us to provide information about the ways in which our students meet goals and expectations. But that responsibility goes beyond the reporting of such information; our deeper obligation -- to ourselves, our students, and society -- is to improve. Those to whom educators are accountable have a corresponding obligation to support such attempts at improvement.

Authors: Alexander W. Astin; Trudy W. Banta; K. Patricia Cross; Elaine El-Khawas; Peter T. Ewell; Pat Hutchings; Theodore J. Marchese; Kay M. McClenney; Marcia Mentkowski; Margaret A. Miller; E. Thomas Moran; Barbara D. Wright

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Appendix D: CMC Faculty and Academic Leader Demographics by Gender, Institution, Position Type, and Race/Ethnicity (Campuses Combined)

Colorado Mountain College (CMC) faculty	Full-time faculty		Part-time faculty		Total gender		Total	% of total
Race/ethnicity	Male	Female	Male	Female	Male	Female		
American Indian/Alaskan Native	1	1	0	0	1	1	2	2
Asian/Pacific Islander	1	1	1	2	2	3	5	4
Black/African American	0	1	2	3	2	4	6	5
Hispanic American	1	2	4	7	5	9	14	12
White/Caucasian	17	13	27	34	44	47	91	75
Unknown/not reported	0	1	2	0	2	1	3	2
Total	20	19	36	46	56	65	121	100

Colorado Community College System (CCCS) faculty	Full-time faculty		Part-time faculty		Total gender		Total	% of total
Race/ethnicity	Male	Female	Male	Female	Male	Female		
American Indian/Alaskan Native	6	5	12	9	18	14	32	1
Asian/Pacific Islander	31	26	96	88	127	114	241	5
Black/African American	38	44	169	141	207	185	392	8
Hispanic American	50	62	278	200	328	265	593	13
White/Caucasian	290	366	1286	1452	1576	1818	3394	72
Unknown/Not Reported	15	10	11	17	26	27	53	1
Total	430	516	1852	1907	2282	2423	4705	100

Colorado Mountain College (CMC) academic leaders	Gender		Race/ethnicity					
Position	Male	Female	American Indian/ Alaskan Native	Asian/ Pacific Islander	Black/ non-Hispanic	Hispanic	White	Unknown/ not reported
Dean of Instruction	1	1	0	0	0	0	2	0
Division Director	1	1	0	0	0	1	1	0
Instructional Chair	1	2	0	1	0	0	2	0
Program Director	1	1	0	0	1	1	0	0
Total	4	5	0	1	1	2	5	0
% of Total	44	56	0	11	11	22	56	0

Colorado Community College System (CCCS) academic leaders	Gender		Race/ethnicity					
Position	Male	Female	American Indian/ Alaskan Native	Asian/ Pacific Islander	Black/ non-Hispanic	Hispanic	White	Unknown/ not reported
Dean of Instruction	8	12	0	1	2	3	10	0
Dean of Arts, Sciences, Social Sciences, etc.	16	27	0		3	5	23	1
Program Director	6	24	1	1	7	14	15	1
Total	30	63	1	2	12	22	48	2
% of Total	32	68	1	2	13	24	58	2

Appendix E: Cover Letter to CMC Faculty Delivered through Email

Dear CMC Faculty Member,

You are invited to participate in a pilot study designed to solicit perceptions from faculty who teach within Colorado Mountain College. This pilot study is part of a dissertation project at the University of Denver and is conducted by Jennifer L. Williams, PhD candidate. Results will be used to determine if the survey instrument is feasible for a full-scale administration survey regarding the same topic. Jennifer can be reached at jenwilli@du.edu or 720-937-0376. This project is supervised by Dissertation Chair Dr. Cheryl Lovell, Morgridge College of Education, University of Denver, Denver, CO 80208, 303-871-2479, cdlovell@du.edu .

Participation in this study should take about 15-20 minutes of your time. Participation will involve responding to six demographic questions and 33 questions about faculty engagement with student learning outcomes assessment. Participation in this project is strictly voluntary. The risks associated with this project are minimal. If, however, you experience discomfort you may discontinue your participation at any time. We respect your right to choose not to answer any questions that may make you feel uncomfortable. Refusal to participate or withdrawal from participation will involve no penalty or loss of benefits to which you are otherwise entitled.

Your responses will be anonymous. That means that no one will be able to connect your identity with the information you give. Your email address has not been disclosed to the researcher. Please do not write your name anywhere on the questionnaire. Your return of the questionnaire will signify your consent to participate in this project.

If you have any concerns or complaints about how you were treated in the questionnaire, please contact Paul Olk, Chair, Institutional Review Board for the Protection of Human Subjects, at 303-871-4531, or you may email du-irb@du.edu, Office of Research and Sponsored Programs or call 303-871-4050 or write to either at the University of Denver, Office of Research and Sponsored Programs, 2199 S. University Blvd., Denver, CO 80208-2121.

You may keep this page for your records.

Survey Link:

This survey will be open from: <Dates>

Thank you for your participation!

Appendix F: Cover Letter to CMC Academic Leader Delivered through Email

Dear CMC Academic Administrator,

You are invited to participate in a pilot study designed to solicit perceptions from academic leaders at Colorado Mountain College. This pilot study is part of a dissertation project at the University of Denver and is conducted by Jennifer L. Williams, PhD candidate. Results will be used to determine if the survey instrument is feasible for a full-scale administration survey regarding the same topic. Jennifer can be reached at jenwilli@du.edu or 720-937-0376. This project is supervised by Dissertation Chair Dr. Cheryl Lovell, Morgridge College of Education, University of Denver, Denver, CO 80208, 303-871-2479, cdlovell@du.edu .

Participation in this study should take about 15-20 minutes of your time. Participation will involve responding to six demographic questions and 29 questions about faculty engagement with student learning outcomes assessment. Participation in this project is strictly voluntary. The risks associated with this project are minimal. If, however, you experience discomfort you may discontinue your participation at any time. We respect your right to choose not to answer any questions that may make you feel uncomfortable. Refusal to participate or withdrawal from participation will involve no penalty or loss of benefits to which you are otherwise entitled.

Your responses will be anonymous. That means that no one will be able to connect your identity with the information you give. Your email address has not been disclosed to the researcher. Please do not write your name anywhere on the questionnaire. Your return of the questionnaire will signify your consent to participate in this project.

If you have any concerns or complaints about how you were treated in the questionnaire, please contact Paul Olk, Chair, Institutional Review Board for the Protection of Human Subjects, at 303-871-4531, or you may email du-irb@du.edu, Office of Research and Sponsored Programs or call 303-871-4050 or write to either at the University of Denver, Office of Research and Sponsored Programs, 2199 S. University Blvd., Denver, CO 80208-2121.

You may keep this page for your records.

Survey Link:

This survey will be open from: <Dates>

Thank you for your participation!

Appendix G: Permission Statement from IUCPR for FSSE Instrument Modifications

From: Nelson Laird, Thomas F [tflaird@indiana.edu]

Sent: Tuesday, December 13, 2011 4:12 PM

To: Jennifer Williams

Subject: Re: Check-In

Jennifer:

If you go the route of using the items unchanged (or largely unchanged) for faculty at multiple community colleges (sounds like interesting work to do), we will need to arrange for an item usage agreement. It is a fairly straight-forward process and won't take long. If you make any adjustments to the items or the scale, you do not need to go through our internal approval process, as they become your items. We can work on that soon or as you get ready to submit for IRB approval.

Let me know if that is the direction you will head. I think it would be interesting to see what you found.

Thanks.

Tom

On Dec 13, 2011, at 10:41 AM, Jennifer Williams wrote:

> Hi Tom,

>

> Hope things are going well for you! I'm sure you are as busy as ever. Just wanted to touch base and let you know my progress regarding the study, and ask a couple of questions. I finished the literature review and passed the comps, so I'm now ready to start

the dissertation proposal. After meeting with my committee, they were highly interested in extending the supplemental survey to faculty, but suggested something I hadn't thought about, so I wanted to run it by you.

>

> I presented the interviews you and I had discussed as my probable methodology, and both Frank and Cheryl were a bit skeptical that that strategy would answer my research questions. So they suggested a different path - I had asked you at one point if I could administer the survey without changes to Arapahoe Community College here in town and you reminded me it was administered only to 4-year schools, so comparisons would be somewhat meaningless. So what if I administered it to the 15 2-year colleges in Colorado and made comparisons across these institutions and faculty rather than against the national data you collected?

>

> Would this be something IUCPR would be interested in? I know you said if I change the survey to add my own questions or if I change the items, that I can just move forward without approval, but I'd like to make sure you are fully aware of what I'm doing and that it's situated in the FSSE research. I also may need to discuss the items with you if there are certain things you would like to know concerning 2-year institutions and/or part-time faculty therein.

>

> I'm happy to give you a call and we can chat more in depth, but I wanted to at least run it by you to think about first. Many thanks again for your thoughts and consideration!

Appendix H: Cognitive Interview Panelist Qualifications

Title	Institution	Description of experience
	Faculty	
Professor and Lead Faculty, Outdoor Recreation Leadership Program	Colorado Mountain College, Leadville campus	Degree: PhD in Natural Resource Management; Professional experience: 17 years' experience in 2-year college instruction as a full professor, Division Chair, Lead Faculty; Publications: Nine publications in discipline, 22 presentations; teaches 30 credit hours per year. Serves on college-wide curriculum and assessment committees
Adjunct Faculty, Outdoor Studies, EMT, and Nursing	Colorado Mountain College, Leadville campus	Degree: MS in NRM/Forestry; Professional experience: 10 years' experience in teaches contract courses Presentations and awards:
Assistant Professor, Business and Entrepreneurship	Colorado Mountain College, Leadville campus	Still Need
	Academic leaders	
Dean of Student Services	Colorado Mountain College, Leadville campus	Degree: MS in Educational Administration and Policy Studies; Professional Experience: Chief Executive Officer and Vice President, Vice President for Student Affairs, Assistant Campus Dean for Instruction; Committee work: Student Success Committee/Quality Action Team; Presentations and awards: League of Innovation in the Community College, American Association of Community Colleges.
Dean of Liberal Arts and Sciences	Arapahoe Community College, Littleton, CO	Degree: PhD in Higher Education Administration; Professional experience: Dean of Liberal Arts & Sciences, Director of Faculty and Instruction,
Assessment Analyst	Community College of Denver, Denver, CO	Degree: MS in Statistics; Professional experience: 10 years' experience in data analysis, institutional assessment, and evaluation; teaches contract courses.

Appendix I: Cognitive Interview Panelist Protocol/Informed Consent

You are invited to participate in a study that is designed to solicit the opinions of faculty and academic leaders concerning learning outcomes assessment in postsecondary education. This pilot study is part of a dissertation project at the University of Denver and is conducted by Jennifer L. Williams, PhD candidate. Results will be used to determine if the survey instrument is feasible for a full-scale administration survey regarding the same topic. Jennifer can be reached at jenwilli@du.edu or 720-937-0376. This project is supervised by Dissertation Chair Dr. Cheryl Lovell, Morgridge College of Education, University of Denver, Denver, CO 80208, 303-871-2479, cdlovell@du.edu.

Participation in this study should take about 30 minutes of your time. Participation will involve responding to questions from the researcher about the content, wording, and order of the proposed items on the pilot survey. The interview will be audio recorded and the researcher will record your responses in a word processing program as you speak. Participation in this project is strictly voluntary. The risks associated with this project are minimal. If, however, you experience discomfort you may discontinue the interview at any time. Your right to choose not to answer any questions that may make you feel uncomfortable will be respected. Refusal to participate or withdrawal from participation will involve no penalty or loss of benefits to which you are otherwise entitled.

Your responses will be identified by code number only and will be kept separate from information that could identify you. This is done to protect the confidentiality of your responses. Only the researcher will have access to your individual data and any reports generated as a result of this study will use only group averages and paraphrased

wording. However, should any information contained in this study be the subject of a court order or lawful subpoena, the University of Denver might not be able to avoid compliance with the order or subpoena. Although no questions in this interview address it, we are required by law to tell you that if information is revealed concerning suicide, homicide, or child abuse and neglect, it is required by law that this be reported to the proper authorities.

If you have any concerns or complaints about how you were treated during the interview, please contact Paul Olk, Chair, Institutional Review Board for the Protection of Human Subjects, at 303-871-4531, or you may email du-irb@du.edu , Office of Research and Sponsored Programs or call 303-871-4050 or write to either at the University of Denver, Office of Research and Sponsored Programs, 2199 S. University Blvd., Denver, CO 80208-2121.

You may keep this page for your records. Please sign the next page if you understand and agree to the above. If you do not understand any part of the above statement, please ask the researcher any questions you have.

I have read and understood the foregoing descriptions of the study entitled *Faculty Engagement with Learning Outcomes Assessment*. I have asked for and received a satisfactory explanation of any language that I did not fully understand. I agree to participate in this study, and I understand that I may withdraw my consent at any time. I have received a copy of this consent form.

Signature _____ Date _____

___ I agree to be audio-recorded.

___ I do not agree to be audio-recorded.

Signature _____ Date _____

Verbal Instructions for Interviews:

1. Items (questions) will be read aloud by the researcher. Please provide your initial thoughts and/or responses to the categories described below.
2. Please do not respond to the question itself, as your task is to identify any problems with item content or meaning, the words or terms used, and/or the question format.
3. The researcher will record your responses on a computer. You may be asked to clarify or specify the meaning of your responses. Please provide specific examples if you believe something should be changed. If a word or phrase is vague, please provide an alternative word or phrase choice.
4. Listen to the item as read by the researcher and provide your feedback regarding:
    a. The item's clarity; e.g., does the question as a whole make sense to you, or does the question flow in a logical manner?
    b. The item's conciseness and culturally oriented; e.g., are the words and/or terms used clear, lucid, and precise?
    c. The item's length, order, or position within the flow of questions; e.g., does the item fit in the flow of content?
    d. The item's content or inclusivity of appropriate words, terms, or concepts; e.g., is there a need for further specification of objectives?

Appendix J: Assessment Expert Panelist Qualifications

Title	Institution	Description of experience
Assistant Dean for Program Evaluation and Assessment	Regis University, Denver, CO	Degree: MBA. Professional Experience: 12 years' experience directing learning outcomes, program, and institutional assessment programs, manages program evaluation processes, 15 prior years' experience in data management and analyses in corporate industry. Presentations at National Institute for Learning Outcomes Assessment Institute, NACUBO, ASHE, and AAHE.
Behavioral Sciences Department Chair and Instructional Assessment Coordinator	Arapahoe Community College, Littleton, CO	Degree: PhD in Environmental Psychology. Professional Experience: Full-time faculty member in psychology at ACC. Teaching includes General Psychology I, General Psychology II, Child Development, Human Growth and Development, and Research Methodology. Classes in distance learning formats, online formats, and lecture formats. Chair of the Behavioral Sciences Department, Chair of the Program Assessment Committee, and membership on the Curriculum Committee, the Faculty Salary Committee and the Institutional Effectiveness Committee.
Vice President of Institutional Effectiveness and Assessment	Lamar Community College, Lamar, CO	Degree: Ph.D. in Administration, Curriculum and Instruction. Professional Experience: Taught for over twenty years as a tenured full professor, served as Instructional Dean, Dean of Arts & Sciences, Vice President of Institutional Effectiveness and a Vice President of Academic Services. Currently employed as the Director of Academic Assessment for Colorado Technical University. Ten years' experience in assessment, instituting programs at four different institutions.

Appendix K: Assessment Expert Protocol/Informed Consent

You are invited to participate in a study that is designed to solicit the opinions of faculty and academic leaders concerning learning outcomes assessment in postsecondary education. This pilot study is part of a dissertation project at the University of Denver and is conducted by Jennifer L. Williams, PhD candidate. Results will be used to determine if the survey instrument is feasible for a full-scale administration survey regarding the same topic. Jennifer can be reached at jenwilli@du.edu or 720-937-0376. This project is supervised by Dissertation Chair Dr. Cheryl Lovell, Morgridge College of Education, University of Denver, Denver, CO 80208, 303-871-2479, cdlovell@du.edu.

Participation in this study should take about 30 minutes of your time. Participation will involve evaluating the content of the proposed items on the pilot survey instrument. Participation in this project is strictly voluntary. The risks associated with this project are minimal. If, however, you experience discomfort you may discontinue the evaluation at any time. Your right to choose not to answer any questions that may make you feel uncomfortable will be respected. Refusal to participate or withdrawal from participation will involve no penalty or loss of benefits to which you are otherwise entitled.

Your responses will be identified by code number only and will be kept separate from information that could identify you. This is done to protect the confidentiality of your responses. Only the researcher will have access to your individual data and any reports generated as a result of this study will use only group averages and paraphrased wording. However, should any information contained in this study be the subject of a court order or lawful subpoena, the University of Denver might not be able to avoid

compliance with the order or subpoena. Although no questions in this interview address it, we are required by law to tell you that if information is revealed concerning suicide, homicide, or child abuse and neglect, it is required by law that this be reported to the proper authorities.

If you have any concerns or complaints about how you were treated during the interview, please contact Paul Olk, Chair, Institutional Review Board for the Protection of Human Subjects, at 303-871-4531, or you may email du-irb@du.edu , Office of Research and Sponsored Programs or call 303-871-4050 or write to either at the University of Denver, Office of Research and Sponsored Programs, 2199 S. University Blvd., Denver, CO 80208-2121.

You may keep this page for your records. Please sign the next page if you understand and agree to the above. If you do not understand any part of the above statement, please ask the researcher any questions you have.

I have read and understood the foregoing descriptions of the study entitled *Faculty Engagement with Learning Outcomes Assessment*. I have asked for and received a satisfactory explanation of any language that I did not fully understand. I agree to participate in this study, and I understand that I may withdraw my consent at any time. I have received a copy of this consent form.

Signature _____ Date _____

Instructions for Panelists:

Thank you for agreeing to be an expert reviewer in this study. Your identity will remain confidential. This review should take approximately 30 minutes. Your role is to perform the following tasks:

1. Review the items and the constructs in the matrix. Each construct reflects the operational definition for the model being assessed.
2. Indicate whether you agree or disagree by checking a Yes or No response concerning:
    a. Terms and concepts fundamentally mean the same thing to each participant and there is a high likelihood participants will respond in a consistent manner.
    b. There is evidence of the degree to which the item measures the content it is intended to measure.
    c. There is evidence that the item covers the range of meanings included in the construct.
3. Include any comments or suggestions for improvement in the comments box.

Please include 2-3 sentences about the following:

Your academic degrees(s):

Your professional background in assessment:

Your professional experience:

Publications, awards, committees, or presentations related to assessment:

Operational Definitions of Constructs

Construct	Operational Definition
Construct 1: Perceived Levels of Functioning	The extent to which faculty and academic leaders perceive the 12 institutional conditions are present and functioning at their institution.
Construct 2: Perceived Levels of Influence	The extent to which faculty and academic leaders perceive the 12 institutional conditions cultivate or influence greater faculty engagement with learning outcomes assessment.
Construct 3: Perceived Levels of Effectiveness	The extent to which faculty and academic leaders perceive the 5 indicators of effectiveness are established as a result of faculty engagement with assessment.

Appendix L: CCCS Faculty and Academic Leader Demographics by Gender, Institution, Position Type, and Race/Ethnicity

Arapahoe Community College (ACC) faculty	Full-time faculty		Part-time faculty		Total gender		Total
Race/ethnicity	Male	Female	Male	Female	Male	Female	
American Indian/Alaskan Native	0	0	1	1	1	1	2
Asian/Pacific Islander	2	0	3	11	5	11	16
Black/African American	0	0	2	4	2	4	6
Hispanic American	1	1	10	8	11	9	20
White/Caucasian	28	61	133	188	161	249	410
Unknown/not reported	1	1	10	22	11	23	34
Total	32	63	159	234	191	297	488

Arapahoe Community College (ACC) academic leaders	Gender		Race/ethnicity					
Position	Male	Female	American Indian/ Alaskan Native	Asian/ Pacific Islander	Black/ Non-Hispanic	Hispanic	White	Unknown/ not reported
Dean, Arts, Design, and Social and Behavioral Sciences	0	1	0	0	0	0	1	0
Dean, Community and Workforce Partnerships	1	0	0	0	0	0	1	0
Dean, Health, Sciences, and Engineering	0	1	0	1	0	0	0	0
Dean, Liberal Arts and Professional Programs	0	1	0	0	0	0	1	0
Dean, Math, Business and Technology	0	1	0	0	0	0	1	0
Director, Developmental Studies	0	1	0	0	0	0	1	0
Vice President for Instruction	0	1	0	0	0	0	1	0
Director of Institutional Effectiveness	0	1	0	0	0	0	1	0
Director, EMT, Law Enforce, Paramedic	1	0	0	0	0	0	1	0
Total	2	7	0	1	0	0	8	0

Note. Source: 2011-12 Colorado Community College System (CCCS) Sourcebook, NCES/NCES Fall 2011

Colorado Community College Online (CCCOnline) faculty	Full-time faculty		Part-time faculty		Total gender		Total
Race/ethnicity	Male	Female	Male	Female	Male	Female	
American Indian/Alaskan Native	0	0	1	0	1	0	1
Asian/Pacific Islander	0	0	5	3	5	3	8
Black/African American	0	0	5	4	5	4	9
Hispanic American	0	0	8	13	8	13	21
White/Caucasian	0	0	66	56	66	56	122
Unknown/not reported	0	0	3	1	3	1	4
Total	0	0	88	77	88	77	165

Colorado Community College Online (CCCOnline) academic leaders	Gender		Race/ethnicity					
Position	Male	Female	American Indian/ Alaskan Native	Asian/ Pacific Islander	Black/ non-Hispanic	Hispanic	White	Unknown/ not reported
Academic Dean	1	0	0	0	0	0	1	0
Associate Dean, Liberal Arts and Communication	0	1	0	0	0	0	1	0
Associate Dean, Career and Technical Education	0	1	0	0	0	0	1	0
Associate Dean, Math	0	1	0	0	0	0	1	0
Associate Dean, Sciences	0	1	0	1	0	0	0	0
Associate Dean, Social Sciences	0	1	0	0	0	0	1	0
Executive Director	0	1	0	0	0	0	1	0
Dean of Instruction	0	1	0	0	0	0	1	0
Total	1	7	0	1	0	0	7	0

Colorado Northwestern Community College (CNCC) faculty	Full-time faculty		Part-time faculty		Total gender		Total
Race/ethnicity	Male	Female	Male	Female	Male	Female	
American Indian/Alaskan Native	0	0	0	0	0	0	0
Asian/Pacific Islander	0	0	0	0	0	0	0
Black/African American	0	0	0	0	0	0	0
Hispanic American	0	0	0	0	0	0	0
White/Caucasian	15	18	19	39	34	57	91
Unknown/not reported	0	0	0	1	0	1	1
Total	15	18	19	40	34	58	92

Colorado Northwestern Community College (CNCC) academic leaders	Gender		Race/ethnicity					
Position	Male	Female	American Indian/ Alaskan Native	Asian/ Pacific Islander	Black/ non-Hispanic	Hispanic	White	Unknown/ not reported
Dean of Instruction/Rangely	0	1	0	0	0	0	1	0
Vice President of Instruction	1	0	0	0	0	0	1	0
Dean of Instruction/Craig	0	1	0	0	0	0	1	0
Total	1	2	0	0	0	0	3	0

Community College of Aurora (CCA) faculty	Full-time faculty		Part-time faculty		Total gender		Total
Race/ethnicity	Male	Female	Male	Female	Male	Female	
American Indian/Alaskan Native	0	0	0	0	0	0	0
Asian/Pacific Islander	0	0	8	2	8	2	10
Black/African American	0	2	7	12	7	14	21
Hispanic American	0	2	11	2	11	4	15
White/Caucasian	23	19	191	142	214	161	375
Unknown/not reported	0	1	2	5	2	6	8
Total	23	24	219	163	242	187	429

Community College of Aurora (CCA) academic leaders	Gender		Race/ethnicity					
Position	Male	Female	American Indian/ Alaskan Native	Asian/ Pacific Islander	Black/ non-Hispanic	Hispanic	White	Unknown/ not reported
Associate Vice President of Instruction	0	1	0	0	0	0	1	0
Dean of Instruction for Math, Science,	1	0	0	0	0	1	0	0
Dean of Instruction for Health Sciences, Public Services	0	1	0	1	0	0	0	0
Vice President, Instruction	0	1	0	0	1	0	0	0
Director, Workforce Development	0	1	0	0	0	0	1	0
Dean, Liberal Arts	1	0	0	0	0	0	1	0
Director of Assess & Institutional Effectiveness	0	1	0	0	0	0	1	0
Dean, Business and Comp Science, Art, Media	1	0	0	0	0	1	0	0
Total	3	5	0	1	1	2	4	0

Note. Source: 2011-12 Colorado Community College System (CCCS) Sourcebook, NCES/NCES Fall 2011

Community College of Denver (CCD) faculty	Full-time faculty		Part-time faculty		Total gender		Total
Race/ethnicity	Male	Female	Male	Female	Male	Female	
American Indian/Alaskan Native	0	1	1	3	1	4	5
Asian/Pacific Islander	2	3	7	15	9	18	27
Black/African American	3	4	12	18	15	22	37
Hispanic American	4	4	21	20	25	24	49
White/Caucasian	45	54	144	187	189	241	430
Unknown/not reported	0	1	3	5	3	6	9
Total	54	67	188	248	242	315	557

Community College of Denver (CCD) academic leaders	Gender		Race/Ethnicity					
Position	Male	Female	American Indian/ Alaskan Native	Asian/ Pacific Islander	Black/ non-Hispanic	Hispanic	White	Unknown/ not reported
Dean, Career And Technical Education	1	0	0	0	0	0	1	0
Provost / Chief Academic Officer	0	1	0	0	1	0	0	0
Dean, Center For Math & Science	1	0	0	0	0	0	1	0
Director / Teacher Education Academy	0	1	0	0	0	1	0	0
Dean, Languages, Arts, Behavioral Science	0	1	0	0	0	0	1	0
Dean, Center For Educational Advancement	0	1	0	0	1	0	0	0
Dean, Center For Allied Health	0	1	0	0	0	0	1	0
Total	2	5	0	0	2	1	4	0

Note. Source: 2011-12 Colorado Community College System (CCCS) Sourcebook, NCES/NCES Fall 2011

Front Range Community College (FRCC) faculty	Full-time faculty		Part-time faculty		Total gender		Total
Race/ethnicity	Male	Female	Male	Female	Male	Female	
American Indian/Alaskan Native	1	2	1	3	2	5	7
Asian/Pacific Islander	1	7	6	15	7	22	29
Black/African American	1	2	7	3	8	5	13
Hispanic American	4	4	19	16	23	20	43
White/Caucasian	83	128	341	497	424	625	1049
Unknown/not reported	1	1	7	6	8	7	15
Total	91	144	381	540	472	684	1156

Front Range Community College (FRCC) academic leaders	Gender		Race/ethnicity					
Position	Male	Female	American Indian/ Alaskan Native	Asian/ Pacific Islander	Black/ non-Hispanic	Hispanic	White	Unknown/ not reported
Dean of Math, Science, Engineering	1	0	0	1	0	0	0	0
Dean, Health Sciences	0	1	0	0	0	0	1	0
Vice President, Instruction	0	1	0	0	0	0	1	0
Dean, Social & Behavioral Science	1	0	0	0	0	1	0	0
Dean, Workforce Development	0	1	0	0	0	1	0	0
Associate Vice President, Academics	0	1	0	0	0	0	1	0
Dean, Liberal Arts & Sciences	0	1	0	0	0	0	1	0
Director of Institutional Effectiveness	0	1	0	0	0	0	1	0
Dean, Business and Computer Science	1	0	0	0	1	0	0	0
Provost, Chief Academic Officer	1	0	0	0	0	0	1	0
Total	4	6	0	1	1	2	6	0

Note. Source: 2011-12 Colorado Community College System (CCCS) Sourcebook, NCES/NCES Fall 2011

Lamar Community College (LCC) faculty	Full-time faculty		Part-time faculty		Total gender		Total
Race/ethnicity	Male	Female	Male	Female	Male	Female	
American Indian/Alaskan Native	0	0	0	0	0	0	0
Asian/Pacific Islander	0	0	0	1	0	1	1
Black/African American	0	0	0	0	0	0	0
Hispanic American	2	0	3	1	5	1	6
White/Caucasian	6	10	18	16	24	26	50
Unknown/Not Reported	0	0	0	0	0	0	0
Total	8	10	21	18	29	28	57

Lamar Community College (LCC) academic leaders	Gender		Race/ethnicity					
Position	Male	Female	American Indian/ Alaskan Native	Asian/ Pacific Islander	Black/ Non-Hispanic	Hispanic	White	Unknown/ not reported
Vice President of Academics	0	1	0	0	0	0	1	0
Dean of Career & Technical Education, Nursing	0	1	0	0	0	0	1	0
Dean of Academics	1	0	0	0	0	0	1	0
Total	1	2	0	0	0	0	3	0

Note. Source: 2011-12 Colorado Community College System (CCCS) Sourcebook, NCES/NCES Fall 2011

Morgan Community College (MCC) faculty	Full-time faculty		Part-time faculty		Total gender		Total
Race/ethnicity	Male	Female	Male	Female	Male	Female	
American Indian/Alaskan Native	0	0	0	1	0	1	1
Asian/Pacific Islander	0	0	1	1	1	1	2
Black/African American	0	0	0	0	0	0	0
Hispanic American	0	0	1	7	1	7	8
White/Caucasian	13	20	41	82	54	102	156
Unknown/not reported	0	0	0	0	0	0	0
Total	13	20	43	91	56	111	167

Morgan Community College (MCC) academic leaders	Gender		Race/ethnicity					
Position	Male	Female	American Indian/ Alaskan Native	Asian/ Pacific Islander	Black/ Non-Hispanic	Hispanic	White	Unknown/ not reported
Director, Institutional Effectiveness	0	1	0	0	0	0	1	0
Vice President of Instruction	0	1	0	0	0	0	1	0
Dean, Arts & Sciences	0	1	0	0	0	0	1	0
Dean, Heath Occupations and Nursing	0	1	0	0	0	0	1	0
Total	0	4	0	0	0	0	4	0

Note. Source: 2011-12 Colorado Community College System (CCCS) Sourcebook, NCES/NCES Fall 2011

Northeastern Junior College (NJC) faculty	Full-time faculty		Part-time faculty		Total gender		Total
Race/ethnicity	Male	Female	Male	Female	Male	Female	
American Indian/Alaskan Native	0	0	0	0	0	0	0
Asian/Pacific Islander	0	0	0	0	0	0	0
Black/African American	0	0	1	0	1	0	1
Hispanic American	0	1	1	2	1	3	4
White/Caucasian	19	28	7	29	26	57	84
Unknown/Not Reported	0	0	0	1	0	1	1
Total	19	29	10	32	29	61	90

Northeastern Junior College (NJC) academic leaders	Gender		Race/ethnicity					
Position	Male	Female	American Indian/ Alaskan Native	Asian/ Pacific Islander	Black/ Non-Hispanic	Hispanic	White	Unknown/ not reported
Director, Extended Studies	0	1	0	0	0	0	1	0
Vice President for Academic Services	1	0	0	0	0	0	1	0
Director of Nursing	0	1	0	0	0	0	1	0
Total	1	3	0	0	0	0	3	0

Note. Source: 2011-12 Colorado Community College System (CCCS) Sourcebook, NCES/NCES Fall 2011

Otero Junior College (OJC) faculty	Full-time faculty		Part-time faculty		Total gender		Total
Race/ethnicity	Male	Female	Male	Female	Male	Female	
American Indian/Alaskan Native	0	1	0	0	0	1	1
Asian/Pacific Islander	0	1	0	0	0	1	1
Black/African American	1	0	0	0	1	0	1
Hispanic American	1	4	2	1	3	5	8
White/Caucasian	14	17	28	13	42	30	72
Unknown/Not Reported	0	0	0	0	0	0	0
Total	16	23	30	14	46	37	83

Otero Junior College (OJC) academic leaders	Gender		Race/ethnicity					
Position	Male	Female	American Indian/ Alaskan Native	Asian/ Pacific Islander	Black/ Non-Hispanic	Hispanic	White	Unknown/ not reported
Associate Vice President of Instructional Services	1	0	0	0	0	0	1	0
Vice President of Instructional Services	0	1	0	0	0	0	1	0
Director of Career and Technical Education	1	0	0	0	0	0	1	0
Total	3	0	0	0	0	0	3	0

Note. Source: 2011-12 Colorado Community College System (CCCS) Sourcebook, NCES/NCES Fall 2011

Pikes Peak Community College (PPCC) faculty	Full-time faculty		Part-time faculty		Total gender		Total
Race/ethnicity	Male	Female	Male	Female	Male	Female	
American Indian/Alaskan Native	1	0	2	3	3	3	6
Asian/Pacific Islander	2	2	7	10	9	12	21
Black/African American	1	4	10	7	11	11	22
Hispanic American	3	3	9	22	12	25	37
White/Caucasian	59	95	280	310	339	405	744
Unknown/not reported	0	1	14	11	14	12	26
Total	66	105	322	363	388	468	856

Pikes Peak Community College (PPCC) academic leaders	Gender		Race/ethnicity					
Position	Male	Female	American Indian/ Alaskan Native	Asian/ Pacific Islander	Black/ Non-Hispanic	Hispanic	White	Unknown/ not reported
Director, Military & Veterans Programs	1	0	0	0	1	0	0	0
Vice President for Instructional Services	0	1	0	0	0	0	1	0
Associate Dean, Math and Language	0	1	0	1	0	0	0	0
Director, EMS Institute	1	0	0	0	0	1	0	0
Associate Dean, CHTS	0	1	0	0	0	0	1	0
Associate Dean, HENPS	0	1	0	0	0	0	1	0
Dean, BSBS	0	1	0	0	0	0	1	0
Dean, CHTS	1	0	0	0	0	0	0	1
Nursing Program Director	0	1	0	0	0	0	1	0
Dean, HENPS	0	1	0	0	0	0	1	0
Total	3	7	0	1	1	1	6	1

Note. Source: 2011-12 Colorado Community College System (CCCS) Sourcebook, NCES/NCES Fall 2011

Pueblo Community College (PCC) faculty	Full-time faculty		Part-time faculty		Total gender		Total
Race/ethnicity	Male	Female	Male	Female	Male	Female	
American Indian/Alaskan Native	1	0	2	1	3	1	4
Asian/Pacific Islander	0	0	6	5	6	5	11
Black/African American	0	1	23	18	23	19	22
Hispanic American	8	5	22	29	30	34	44
White/Caucasian	33	46	111	112	144	158	342
Unknown/Not Reported	2	2	2	0	4	2	6
Total	44	54	166	165	210	219	429

Pueblo Community College (PCC) academic leaders	Gender		Race/ethnicity					
Position	Male	Female	American Indian/ Alaskan Native	Asian/ Pacific Islander	Black/ Non-Hispanic	Hispanic	White	Unknown/ not reported
Dean of Arts & Science	0	1	0	0	0	0	1	0
Dean of Business & Technology	1	0	0	0	0	0	1	0
Dean of Health Professions	0	1	0	0	0	0	1	0
Vice President of Learning	0	1	0	1	0	0	0	0
Director, Professional Development & Leadership Academy (PDLA)	0	1	0	0	0	0	1	0
Campus Dean, Fremont	1	0	0	0	0	0	1	0
Campus Dean, SW Colorado	0	1	0	0	0	0	1	0
Director, Community Education & Training and Pre-College Programs	0	1	0	0	1	0	0	0
Director, Economic & Workforce Development	1	0	0	0	0	1	0	0
Total	3	6	0	1	1	1	6	0

Note. Source: 2011-12 Colorado Community College System (CCCS) Sourcebook, NCES/NCES Fall 2011

Red Rocks Community College (RRCC) faculty	Full-time faculty		Part-time faculty		Total gender		Total
Race/ethnicity	Male	Female	Male	Female	Male	Female	
American Indian/Alaskan Native	0	2	3	2	3	4	7
Asian/Pacific Islander	0	1	4	4	4	5	9
Black/African American	0	0	3	3	3	3	6
Hispanic American	1	1	10	5	11	6	17
White/Caucasian	32	50	200	203	232	253	485
Unknown/not reported	0	1	4	3	4	4	8
Total	33	55	224	220	257	275	532

Red Rocks Community College (RRCC) academic leaders	Gender		Race/ethnicity					
Position	Male	Female	American Indian/ Alaskan Native	Asian/ Pacific Islander	Black/ non-Hispanic	Hispanic	White	Unknown/ not reported
Director, Institutional Effectiveness	1	0	0	0	0	1	0	0
Vice President of Instruction	1	0	0	0	0	0	1	0
Dean, Arts & Sciences	1	0	0	0	0	0	1	0
Dean, Heath Occupations and Nursing	0	1	0	0	0	0	1	0
Dean of Instruction	0	1	0	0	1	0	0	0
Arvada Campus Dean	0	1	0	0	0	0	1	0
Dean, CTE and Workforce Dev.	1	0	0	0	0	0	1	0
Total	4	3	0	0	1	1	5	0

Note. Source: 2011-12 Colorado Community College System (CCCS) Sourcebook, NCES/NCES Fall 2011

Trinidad State Junior College (TSJC) faculty	Full-time faculty		Part-time faculty		Total gender		Total
Race/ethnicity	Male	Female	Male	Female	Male	Female	
American Indian/Alaskan Native	0	0	1	1	1	1	2
Asian/Pacific Islander	0	0	0	1	0	1	1
Black/African American	0	0	0	0	0	0	0
Hispanic American	2	3	9	11	11	14	25
White/Caucasian	19	21	39	40	58	61	119
Unknown/not reported	0	4	2	0	2	4	6
Total	21	28	51	53	72	81	153

Trinidad State Junior College (TSJC) academic leaders	Gender		Race/ethnicity					
Position	Male	Female	American Indian/ Alaskan Native	Asian/ Pacific Islander	Black/ Non-Hispanic	Hispanic	White	Unknown/ not reported
Director of Adult Education	0	1	0	0	0	1	0	0
Vice President of Instruction	0	1	0	0	0	0	1	0
Dean, Arts & Sciences	0	1	0	0	0	0	1	0
Dean, Heath Occupations and Nursing	0	1	0	0	0	0	1	0
Dean, CTE and Workforce Dev.	1	0	0	0	0	1	0	0
Dean of Instruction/Trinidad	1	0	0	0	0	0	1	0
Dean of Instruction/Alamosa	0	1	0	0	0	1	0	0
Dean of Business & Technology	1	0	0	0	0	0	1	0
Total	3	5	0	0	0	3	5	0

Note. Source: 2011-12 Colorado Community College System (CCCS) Sourcebook, NCES/NCES Fall 2011

Appendix M: Introductory Letter from CCCS Provost and Vice Provost to CCCS Presidents

Dear CCCS Presidents:

Dr. Epper and I are pleased to announce that CCCS will be participating in a research study conducted by a local graduate student at the University of Denver. Ms. Jennifer Williams is completing her dissertation research on the topic of *Faculty Engagement with Learning Outcomes Assessment*, providing us with a unique opportunity to examine CCCS faculty and administrator perspectives regarding institutional conditions that reportedly elicit greater faculty engagement with learning outcomes assessment.

The benefits of participation lie in the development of a more complete and accurate account of what is transpiring at the ground-level within CCCS institutions regarding faculty engagement with learning outcomes assessment. This investigation may assist you and your assessment teams in developing a clear understanding about the resources necessary to achieve institutional goals for learning outcomes assessment, and may provide accurate information about whether or not faculty assessment practices are in alignment with program and institutional assessment initiatives. Identifying the practices faculty actually engage in, why they engage in these practices, what evidence indicates that student learning has occurred, and what data are collected that inform curricular decisions may also help your assessment teams create assessment processes that are intentional, meaningful, and in partnership with the academic programs. Ms. Williams will provide individualized data analysis and reports for each campus, and will share findings with you and/or your leadership teams per your request.

The survey will be sent to you by Ms. Williams via email on **Monday, October 22, 2012**. The email will contain a link to the survey and instructions for participants. **Presidents are asked to forward the email to all faculty groups at their campuses, including full-time and part-time, and to all academic leaders at their campuses; e.g., Vice Presidents, Deans, and Directors with oversight of academic or instructional functions.** Your endorsement of participation is greatly appreciated.

Thank you for your assistance and continued support.

Sincerely,

Dr. Geri Anderson, VP Student & Academic Affairs/Provost

Dr. Rhonda Epper, Assistant Provost

Appendix N: Email Letter to CCCS Presidents

Dear CCCS President (name):

I am honored to send you this request to participate in my dissertation research project entitled *Faculty Engagement with Learning Outcomes Assessment: A Study of Public Two-Year Colleges in Colorado.* I am working in cooperation with Dr. Geri Anderson and Dr. Rhonda Epper at the CCCS Provost's office. In an email sent to you last week, Dr. Anderson and Dr. Epper announced this study and requested your assistance in sending the survey to two groups at your campuses: **(1) all full-time and part-time faculty, including those not currently teaching, (2) and all academic leaders at your campuses; e.g., Vice Presidents, Deans, and Directors with oversight of academic or instructional functions**. I am also requesting to send you two follow-up reminder emails to forward to the same groups during the second and third week of the open response period.

The study is designed to solicit CCCS faculty and academic administrator perspectives about faculty engagement in learning outcomes assessment. In the current postsecondary climate, developing a clear understanding about institutional conditions that may elicit greater and more effective faculty involvement in assessment initiatives is paramount to achieving institutional effectiveness and student learning success goals. I will provide individualized data analysis and reports for each campus, and will share findings with you and/or your leadership teams per your request.

The following text is all you need to forward to the two groups. Any additional endorsement or encouragement on your behalf is greatly appreciated. Survey responses are anonymous and participant emails or IP addresses will not be tracked. However, there

is an opportunity for respondents to participate in a raffle drawing for a 2012 *Kindle Fire HD* electronic tablet, wherein an email address is needed to contact the winning recipient. This entry will not be used for identification purposes.

Thank you for your time and support of this project!

Sincerely,

Jennifer L. Williams

PhD Candidate

Higher Education Program

University of Denver

jenwilli@du.edu

720-937-0376

Email content sent to participants from CCCS Presidents:

Dear CCCS Faculty Members and Academic Administrators,

You are invited to participate in a research study designed to solicit perceptions from faculty and academic leaders within the Colorado Community College System (CCCS). This study is part of a dissertation project at the University of Denver entitled: *Faculty Engagement with Learning Outcomes Assessment: A Study of Public Two-Year Colleges in Colorado,* and is conducted by Jennifer L. Williams, PhD candidate. Jennifer can be reached at jenwilli@du.edu or 720-937-0376. This project is supervised by Dissertation Chair Dr. Cheryl Lovell, Morgridge College of Education, University of Denver, Denver, CO 80208, 303-871-2479, cdlovell@du.edu .

Participation in this study should take about 15-20 minutes of your time. Participation will involve responding to seven demographic questions and 31 questions

about faculty engagement with student learning outcomes assessment. Additionally, 27 items from a separate research study are included that have different scales and may seem unrelated to the initial research questions presented. However, these items are essential to estimating the survey instrument's validity, thus your responses to these questions are very important as well.

Your responses will be anonymous, which means that no one will be able to connect your identity with the information you give. You may however, elect to enter a raffle drawing for a brand new 2012 *Kindle Fire HD* electronic tablet (http://www.amazon.com/Kindle-Fire-HD/dp/B0083PWAPW) by entering your email address into a secured comment box at the end of the survey. This response selection is not used for identification purposes and will only be used to contact the winner of the raffle. You will be asked at the beginning of the survey if you consent to participate in this project.

Survey Link: https://www.surveymonkey.com/s/MVP95YJ

This survey will be open from October 22 - November 18, 2012.

Thank you for your participation!

Survey Reminder Notice to Presidents:

Dear President (name):

Please find below a reminder notice to send to your faculty and academic leader groups regarding the *Faculty Engagement with Learning Outcomes Assessment* survey. These groups include: **(1) all full-time and part-time faculty, including those not currently teaching, (2) and all academic leaders at your campuses; e.g., Vice**

Presidents, Deans, and Directors with oversight of academic or instructional functions.

As mentioned previously, any endorsement on your behalf is greatly appreciated.

Many thanks for your support of and assistance with this project!

Sincerely,

Jennifer L. Williams

PhD Candidate

University of Denver

jenwilli@du.edu

Survey Reminder Notice to Participants from Presidents:

Dear CCCS Faculty Members and Academic Administrators,

Please don't forget to participate in the *Faculty Engagement with Learning Outcomes Assessment* survey: https://www.surveymonkey.com/s/MVP95YJ

This study is part of a dissertation project at the University of Denver entitled: *Faculty Engagement with Learning Outcomes Assessment: A Study of Public Two-Year Colleges in Colorado,* and is conducted by Jennifer L. Williams, PhD candidate. Jennifer can be reached at jenwilli@du.edu or 720-937-0376.

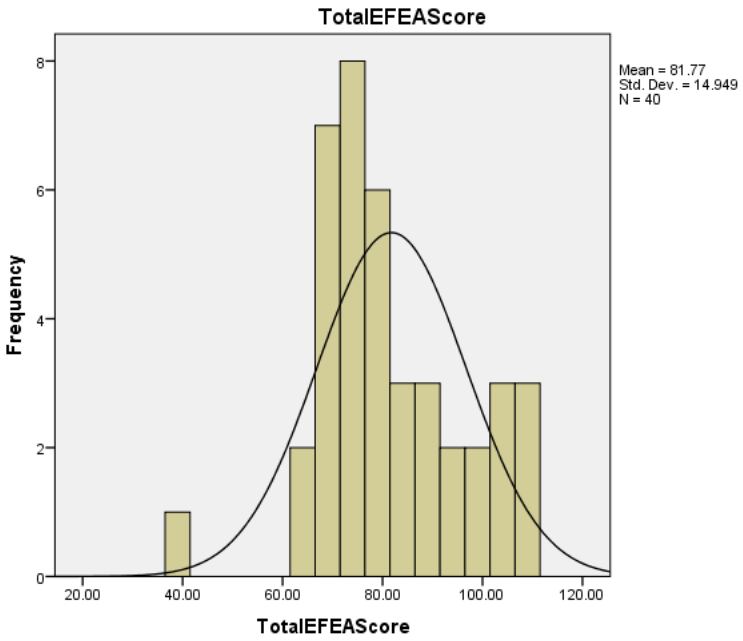
Participation in this study should take about 15-20 minutes of your time. Your responses will be anonymous, which means that no one will be able to connect your identity with the information you give. You may however, elect to enter a raffle drawing for a brand new 2012 *Kindle Fire HD* electronic tablet (http://www.amazon.com/Kindle-Fire-HD/dp/B0083PWAPW) by entering your email address into a secured comment box at the end of the survey. This response selection is not used for identification purposes

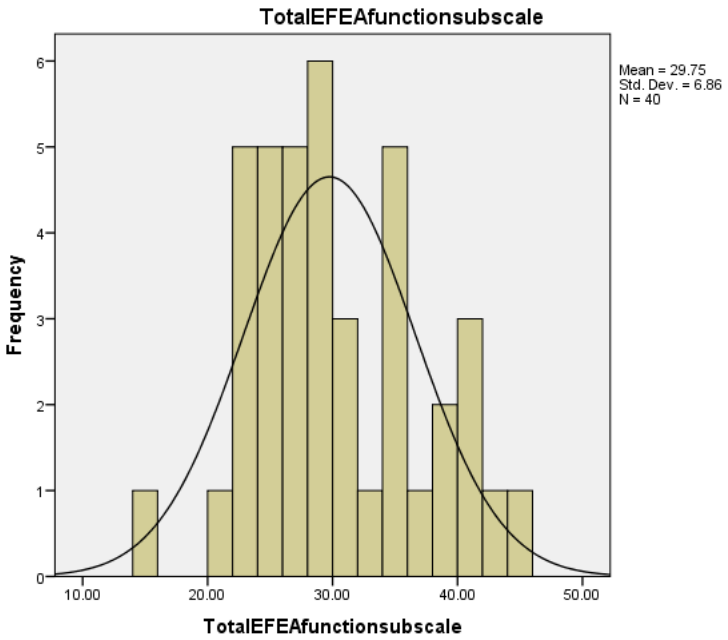
and will only be used to contact the winner of the raffle. You will be asked at the beginning of the survey if you consent to participate in this project.

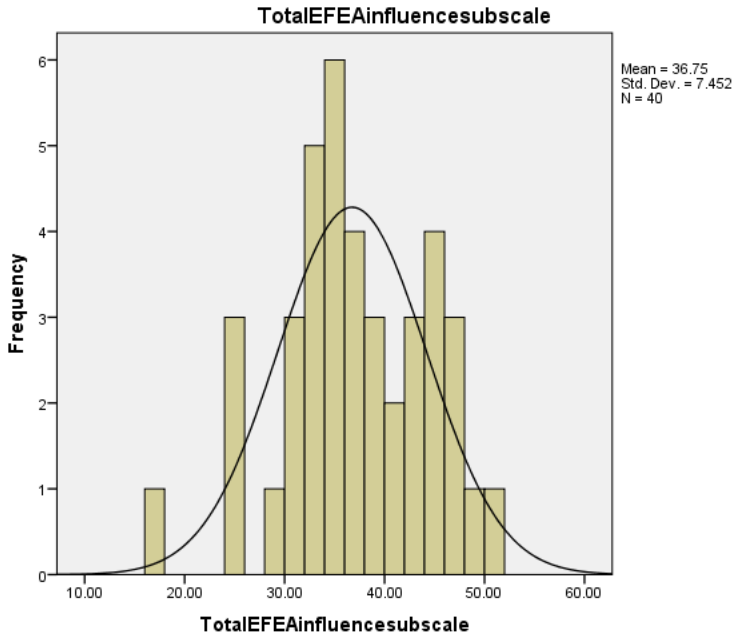
The survey will be open from October 22 - November 18, 2012.

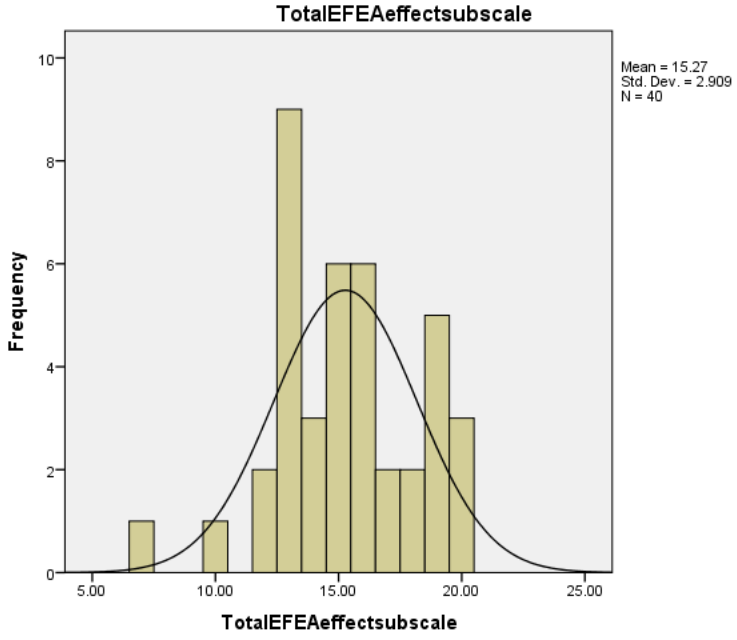
Thank you for your participation!

Appendix O: EFEA Scaled Items Distributions






TotalEFEAinfluencesubscale
Mean = 36.75
Std. Dev. = 7.452
N = 40
Frequency
0
1
2
3
4
5
6
10.00
20.00
30.00
40.00
50.00
60.00
TotalEFEAinfluencesubscale


TotalEFEAeffectsubscale
Mean = 15.27
Std. Dev. = 2.909
N = 40
Frequency
0
2
4
6
8
10
5.00
10.00
15.00
20.00
25.00
TotalEFEAeffectsubscale

Appendix P: Cognitive Interview Transcripts

Academic Leader Interview 1

Academic Leader Interview 1	Category 1: Item-specific recommendations for changes to wording	Category 2: Need for further specification of objectives	Category 3: Problems of ordering or interactive effects	Category 4: Problems related to overall instrument length or burden	Category 5: Limitations on what can be studied
Responses to Instructions	You might need to define institutional accountability for adjuncts and/or community education instructors. Some people may need help with this concept.	Clear	n/a	n/a	n/a
Part A.					
Responses to Demographic items	Program Director position is missing.	None	None	None	None
Part B.					
Responses to Scale	Consider adding a 'don't know' or 'neutral' response choice since many adjuncts won't know what's happening internally.	None	None	None	None
Response to Item F1	None	None	None	None	None
Response to Item F2	None	None	None	None	None
Response to Item F3	None	Maybe include the fact that development can be inside or outside the college.	None	None	None
Response to Item F4	None	None	None	None	None
Response to Item F5	None	None	None	None	None
Response to Item F6	None	None	None	None	None

Response to Item F7	None	None	None	None	None
Response to Item F8	Second part of question is vague.	None	None	None	Don't know if everyone will understand what institutional accountability means.
Response to Item F9	None	None	None	None	None
Response to Item F10	None	None	Not sure everyone will understand how to answer this. Some won't know if students are asked to participate. May elicit fewer responses or some may skip because they don't know.	None	None
Response to Item F11	None	None	None	None	None
Response to Item F12	None	None	None	None	None
Response to Item I13	None	None	None	None	None
Response to Item I14	None	None	None	None	None
Response to Item I15	None	None	None	None	None
Response to Item I16	None	None	None	None	None
Response to Item I17	None	None	None	None	None
Response to Item I18	None	None	None	None	None
Response to Item I19	None	None	None	None	None
Response to Item I20	None	None	None	Question is long and wordy.	None
Response to Item I21	None	None	None	None	None
Response to Item I22	None	None	None	None	None

Response to Item I23	None	None	None	None	None
Response to Item I24	None	None	None	None	None
Response to Item E25	Can you repeat the question? It's pretty confusing and wordy.	None	None	Also think it's too long and somewhat vague.	None
Response to Item E26	None	None	None	None	None
Response to Item E27	None	None	None	None	None
Response to Item E28	None	None	None	None	None
Response to Item E29	None	None	None	None	None
Part D.					
Survey Comments	None	Need definitions for a lot of the terms or vocabulary included.	Intro email is very long and hard to read. Don't think it captures the reader's attention the way it should. Maybe add some color or move it to the beginning of the survey where people can elect to take the survey.	None	None

Academic Leader Interview 2

Academic Leader Interview 2	Category 1: Item-specific recommendations for changes to wording	Category 2: Need for further specification of objectives	Category 3: Problems of ordering or interactive effects	Category 4: Problems related to overall instrument length or burden	Category 5: Limitations on what can be studied
Responses to Instructions	None	Clear	n/a	n/a	n/a
Part A.					

Responses to Demographic items	None	None	My preference is to select age from a range rather than writing in exact age.	None	Should there be a "prefer not to respond" selection? But then you don't get the answers you need, so never mind.
Part B.					
Responses to Scale	None	Multi-purpose fits different answers. Responses seem to be spaced appropriately.	None	None	None
Response to Item F1	None	None	None	Clear but a long question, could be cumbersome. Might have to re-read.	None
Response to Item F2	None	None	None	None	None
Response to Item F3	None	None	None	None	None
Response to Item F4	Collaborative – with each other or outside institution? Fuzzy on what this includes.	None	None	None	None
Response to Item F5	None	None	None	None	None
Response to Item F6	None	None	None	None	None
Response to Item F7	Embedded is a weird word – is it part of the culture, commonplace or accepted? Maybe a better word is 'integrate'.	None	None	None	None
Response to Item F8	"In the service of student learning" is wordy – can you take out service? Tricky word. Makes me think of student services.	None	None	Question is too long, but I get it.	None
Response to Item F9	None	None	None	None	None

Response to Item F10	None	Are you asking if students should be included? For example… is this distinct from course evaluations?	None	None	None
Response to Item F11	None	None	None	None	None
Response to Item F12	None	Include the word "data" on each item, e.g., data collection, etc.	None	None	None
Response to Item I13	None	None	None	None	None
Response to Item I14	None	None	None	None	None
Response to Item I15	None	None	None	None	None
Response to Item I16	None	None	None	None	None
Response to Item I17	None	None	None	None	None
Response to Item I18	None	None	None	None	None
Response to Item I19	Include the word "include" or "merge" instead of embed – confusing.	None	None	None	None
Response to Item I20	Again, I don't like the word service – sounds like student services. The word 'above' isn't clear either – does it mean in addition to?	None	None	None	None
Response to Item I21	None	None	None	None	None
Response to Item I22	None	None	None	None	None
Response to Item I23	None	None	None	None	None
Response to Item I24	None	None	None	None	None
Response to Item E25	None	None	None	None	None
Response to Item E26	None	None	None	None	None

Response to Item E27	None	None	None	None	None
Response to Item E28	None	Define learner-centered culture.	None	None	None
Response to Item E29	None	None	None	None	None
Part D.					
Survey Comments	None	None		Try reducing the redundancy among questions.	

Academic Leader Interview 3

Academic Leader Interview 3	Category 1: Item-specific recommendations for changes to wording	Category 2: Need for further specification of objectives	Category 3: Problems of ordering or interactive effects	Category 4: Problems related to overall instrument length or burden	Category 5: Limitations on what can be studied
Responses to Instructions	Define institutional accountability and learning outcomes assessment and add some examples, particularly important for adjuncts.	Clear	n/a	n/a	n/a
Part A.					
Responses to Demographic items	None	None	None	Don't need "Other" response in Position Type or Education categories. You should only include the exact positions that are available at the colleges.	None
Part B.					
Responses to Scale	None	None	None	None	None
Response to Item F1				A bit long and cumbersome, but understandable.	
Response to Item F2	None	None	None	None	None
Response to Item F3	None	None	None	None	None

Response to Item F4	None	None	None	None	None
Response to Item F5	None	None	Is this the same thing you're asking in question 4? Collaborating with peers?	None	None
Response to Item F6	None	None	None	None	None
Response to Item F7	None	None	None	None	Many adjuncts will not know the answer to this as they are often not included in policy-making nor do they get much communication about it.
Response to Item F8	None	None	None	Question is way too long and double-barreled. There are two issues - student learning and accountability. Split into two questions.	None
Response to Item F9	None	None	None	None	Again, adjuncts won't know if top leaders are involved unless there is direct communication.
Response to Item F10	None	None	None	None	None
Response to Item F11	None	None	None	None	None
Response to Item F12	None	None	None	None	None
Response to Item I13	None	None	None	Another long question. Perhaps try to shorten it by taking out the phrase "do you believe".	None
Response to Item I14	None	None	None	None	None
Response to Item I15	None	None	None	None	None
Response to Item I16	None	None	None	None	None

Response to Item I17	None	None	None	None	None
Response to Item I18	None	None	None	None	None
Response to Item I19	None	None	None	None	None
Response to Item I20	None	Not sure what “in the service of student learning” is supposed to capture - may confuse some people. Say what you mean - use "purpose" or "intent" instead.	None	This is the same as before - split the question.	None
Response to Item I21	None	None	None	None	None
Response to Item I22	None	None	None	None	None
Response to Item I23	None	None	None	None	None
Response to Item I24	None	None	None	None	None
Response to Item E25	None	None	None	None	None
Response to Item E26	None	None	None	None	None
Response to Item E27	None	None	None	None	None
Response to Item E28	None	I believe know what a learner-centered culture is but am not sure it means the same thing you do here. Put this in the definitions as well.	None	None	None
Response to Item E29	None	None	None	None	None
Part D.					

Survey Comments	None	I'm just not familiar with many of the concepts you used.	Email is lengthy and tedious. I suggest placing it in the survey somewhere, after they've entered. Make it flashy or catchy somehow, too.	None	None

Faculty Interview 1

Faculty Interviewee 1	Category 1: Item-specific recommendations for changes to wording	Category 2: Need for further specification of objectives	Category 3: Problems of ordering or interactive effects	Category 4: Problems related to overall instrument length or burden	Category 5: Limitations on what can be studied
Responses to Instructions	None	None	n/a	n/a	n/a
Part A.					
Responses to Demographic items	None	None	None	None	None
Part B.					
Responses to Scale	None	None	None	None	None
Response to Item F1	None	None	None	None	None
Response to Item F2	None	None	None	None	None
Response to Item F3	None	None	None	None	None
Response to Item F4	None	Collaborate with whom? Need to specify who faculty will collaborate with.	None	None	None
Response to Item F5	None	None	None	None	None
Response to Item F6	None	Include examples of resources.	None	None	None
Response to Item F7	None	None	None	None	None

Response to Item F8	None	None	None	Question is long and complex. Consider splitting it into two.	None
Response to Item F9	None	None	None	None	None
Response to Item F10	None	None	None	None	None
Response to Item F11	None	Include examples of rewards - keeps it distinct from resources.	None	None	None
Response to Item F12	None	None	None	None	None
Response to Item I13	None	Are you asking if I am encouraged when the institution listens to me or when institutional assessment practices are developed, are they influenced by my beliefs and values about assessment?	None	None	None
Response to Item I14	None	None	None	None	None
Response to Item I15	None	None	None	None	None
Response to Item I16	None	None	None	None	None
Response to Item I17	None	None	None	None	None
Response to Item I18	None	None	None	None	Sounds like LOA is part of the administrative policies and procedures – please provide an example of what such a policy would include.
Response to Item I19	None	None	None	None	None
Response to Item I20	None	None	None	Confusing – need to re-word to reflect two questions.	None

Response to Item I21	None	None	None	None	None
Response to Item I22	Clear, but similar to other resources question, add examples.	None	None	None	None
Response to Item I23	None	None	None	None	None
Response to Item I24	None	None	None	None	None
Response to Item E25	None	None	None	None	None
Response to Item E26	None	None	None	None	None
Response to Item E27	None	None	None	None	None
Response to Item E28	None	Define learner-centered or provide an example.	None	None	None
Response to Item E29	None	None	None	None	None
Part C.					
Responses to EG1	Need more guidance here - do I just list everything I do?	None	None	None	None
Responses to EG2	None	None	None	None	None
Responses to EG3	None	None	None	None	A bit confusing. Not sure how to answer because all I have to say is "I just know because of my 30 years in teaching".
Responses to EG4	Maybe provide definition or examples of the kinds of data they could collect; e.g., test scores or prior learning assessments.	None	None	None	None
Part E.					
Survey Comments	None	Include examples for unfamiliar terms.	None	None	None

Faculty Interview 2

Faculty Interview 2	Category 1: Item-specific recommendations for changes to wording	Category 2: Need for further specification of objectives	Category 3: Problems of ordering or interactive effects	Category 4: Problems related to overall instrument length or burden	Category 5: Limitations on what can be studied
Responses to Instructions	Clarify assessment and accountability.	None	None	None	None
Part A.					
Responses to Demographic items	None	None	None	None	Some may not include their age or race.
Part B.					
Responses to Scale	None	None	None	None	None
Response to Item F1	None	None	None	Long question. Can you condense or take something out?	None
Response to Item F2	Is faculty development the same thing as training?	None	None	None	None
Response to Item F3	None	None	None	None	None
Response to Item F4	None	None	None	Another long question.	None
Response to Item F5	None	None	None	Sounds like question 4, so maybe add some specific examples of who I would collaborate with if not my discipline peers.	None
Response to Item F6	None	None	None	None	None
Response to Item F7	None	None	None	None	None
Response to Item F8	Wordy and awkward. What is institutional accountability?	None	None	None	None
Response to Item F9	None	None	None	None	Adjuncts won't know unless the top leaders are really visible.

Response to Item F10	None	None	None	None	None
Response to Item F11	None	None	None	None	None
Response to Item F12	None	None	None	None	None
Response to Item I13	None	None	None	Long and wordy again. Maybe take out values and just use beliefs.	None
Response to Item I14	None	None	None	None	None
Response to Item I15	None	None	None	None	None
Response to Item I16	None	None	None	None	None
Response to Item I17	Maybe use collaborate in both questions 16 and 17; e.g., collaborate with peers and collaborate with administration.	None	None	None	None
Response to Item I18	None	None	None	None	None
Response to Item I19	Not sure what “embed” really means - makes me wonder if it means 'include' or 'adopt'?	None	None	None	None
Response to Item I20	Again, not sure what institutional accountability means.	None	None	Long question. I suggest re-wording or perhaps adding another question.	None
Response to Item I21	None	None	None	None	None
Response to Item I22	None	None	None	None	None
Response to Item I23	None	None	None	None	None
Response to Item I24	None	None	None	None	None

Response to Item E25	None	Please repeat. I'm not sure I would know how to answer this. If I don't know what the institution is doing, I can't judge if my satisfaction levels increase.	None	None	None
Response to Item E26	None	None	None	None	None
Response to Item E27	None	None	None	None	None
Response to Item E28	None	None	None	None	None
Response to Item E29	None	None	None	None	None
Part C.					
Responses to EG1	None	What do you mean by practices? How I grade? Clarify if this means at classroom or college-level.	None	None	None
Responses to EG2	None	None	None	None	None
Responses to EG3	Wording is a bit confusing. I understand what you're asking but maybe include a sample of how I would know.	None	None	None	None
Responses to EG4	None	None	None	None	None
Part E.					
Survey Comments	None	None	Email invitation is boring and way too long. I've seen surveys with that information on the first page - flows better.	None	Adjunct faculty may not know how to answer many of the questions.

Faculty Interview 3

Faculty Interview 3	Category 1: Item-specific recommendations for changes to wording	Category 2: Need for further specification of objectives	Category 3: Problems of ordering or interactive effects	Category 4: Problems related to overall instrument length or burden	Category 5: Limitations on what can be studied
Responses to Instructions	I'm not sure I like the phrase "fosters continuous attention" - not sure what it means. Maybe try "focus on student learning"? I also don't know what accountability means – please define this.	n/a	n/a	n/a	n/a
Part A.					
Responses to Demographic items	None	None	None	None	None
Part B.					
Responses to Scale	None	None	None	None	None
Response to Item F1				A little long - need to read it to fully understand what you're asking.	
Response to Item F2	None	None	None	None	None
Response to Item F3	None	None	Hard time distinguishing between 2 and 3 – use the term 'practice' to make the distinction between the two.	None	None
Response to Item F4	None	None	None	None	None
Response to Item F5	None	None	None	None	None
Response to Item F6	None	None	None	None	None
Response to Item F7	None	None	None	None	None

Response to Item F8	None	None	None	Ok, a little confusing. Maybe split the question.	None
Response to Item F9	Not sure what top administrators mean. Add VP and President if that's what you mean.	None	None	None	None
Response to Item F10	None	None	None	None	None
Response to Item F11	None	None	None	None	None
Response to Item F12	None	None	None	None	None
Response to Item I13	None	Don't understand this fully. Too wordy, use solicited or encouraged and take out "institutional assessment practices". Had to read and listen too many times.	None	None	None
Response to Item I14	None	None	None	None	None
Response to Item I15	None	None	None	None	None
Response to Item I16	None	None	None	None	None
Response to Item I17	None	None	None	None	None
Response to Item I18	None	None	None	None	None
Response to Item I19	None	None	None	None	None
Response to Item I20	None	Can you give an example of accountability?	None	Same as before - too long and sounds like you're asking two questions.	None
Response to Item I21	None	None	None	None	None
Response to Item I22	Add President or VP's if these are particular positions.	None	None	None	None
Response to Item I23	None	None	None	None	None

Response to Item I24	None	None	None	None	None
Response to Item E25	Can you repeat? Confusing, too long, and vague.	None	None	None	None
Response to Item E26	None	None	None	None	None
Response to Item E27	None	None	None	None	None
Response to Item E28	None	Don't know what a learner-centered culture is – maybe add a definition of it up front.	None	None	None
Response to Item E29	None	Confusing – do you mean college goals or my goals are met?	None	None	None
Part C.					
Responses to EG1	None	None	None	None	I'm actually not sure if adjuncts will answer this question. Many of us don't know if we are using LOA at all since we're not trained.
Responses to EG2	None	I need some examples here - why does anyone use LOA?	None	None	None
Responses to EG3	None	None	None	None	Difficult to answer. People will really need to think about how to respond to this one.
Responses to EG4	None	None	None	None	None
Part E.					

Survey Comments		Need examples of practices and how they are used. I don't know if I use LOA or not!	Letter with link is terribly long and doesn't invite me to read the whole thing. You may have problems with people actually taking the survey because they are turned off from the start.

Appendix Q: Summary of Cognitive Interview Comments and Modifications to Instrument

Item	Comments	Modification
Instructions to Participants	Four comments that the definitions of learning outcomes assessment, institutional accountability, and learner-centered culture needed to be included.	Included definitions in the Instructions.
Demographic Items	One comment that an academic leader position was missing; one comment to choose Age from a category rather than write-in; one comment that the "Other" category be removed from the Position Type and Education categories.	Added "Program Director" to list of positions; retained Age write-in option; removed "Other" category from Position Type and Education categories.
Rating Scale	One comment to add "Neutral" or "Don't know" option to scale.	None
Response to Item F1	Three comments the item was too long and cumbersome.	Revised wording of item to reflect
Response to Item F3	One comment that faculty development could be provided internally or externally; one comment that it was hard to see differences between faculty development and faculty experiences in assessment.	None
Response to Item F4	Two comments that collaborative was vague; one comment the question was too long.	Included examples of collaborative partners.
Response to Item F5	Two comments that this item was redundant with item F4.	Included the term "discipline peers".
Response to Item F6	One comment to include examples of resources.	Included examples of resources.
Response to Item F7	Three comments that the term "embed" was confusing or awkward; one comment that adjuncts would not know how to answer this item as it relates to policy.	Changed the term "embed" to "merge".
Response to Item F8	5 comments that the question was too long and sounded like two questions; one comment that the phrase "in the service of student learning" sounded like student services; one questioned the definition of institutional accountability.	Split the item into two to address two separate issues; revised in the service of" to "for the purpose of"; included definition of institutional accountability in the Instructions.
Response to Item F9	One comment that adjunct faculty may not know if top leaders are involved in assessment practices.	None
Response to Item F10	Two comments that not everyone will know how students are involved in assessment practices.	None

Response to Item F11	One comment that examples of awards/rewards should be included to lessen confusion with resources/stipends.	Added examples of rewards.
Response to Item F12	One suggestion to include the word “data” to each action item; e.g., data collection.	Included the word “data” to each action item.
Response to Item I13	One suggestion to remove the phrase “do you believe” to shorten the length of the question; one comment that the intent of the question is vague.	None
Response to Item I17	One comment to use the term “collaborate” in both questions about working with others inside and outside the institution.	Changed the phrase “working with to “collaborate with”.
Response to Item I18	One comment to provide examples of institutional policies and procedures.	Included two examples of institutional policies and procedures.
Response to Item I19	Two comments to change the word “embed” to “include”, “adopt” or “merge”.	Changed the term “embed” to “merge”.
Response to Item I20	Two comments the phrase “in the service of” sounded like student services and suggested “for the purpose of”; one comment that the word “above” was unclear; 5 comments that the question was too long and needed to be split; one request for an example of accountability.	Replaced “in the service of” with “for the purpose of”; split the question into two, thus the word “above” was removed; included an example of accountability in new question I21.
Response to Item I22	One comment to add examples of top leadership; e.g., presidents or vice presidents.	Included examples of top leadership.
Response to Item E25	Two comments that the question was confusing, wordy, long, and vague; one comment that the question is difficult to answer due to limited knowledge base.	Revised question to reflect clearer statement; eliminated the words “classroom and program-level”.
Response to Item E28	Four comments to include a definition or examples of learner-centered culture.	Included a definition in the Instructions section.
Response to Item E29	One comment to include a clearer statement about institutional goals.	None

Response to Item EG1	Two requests for better instructions on what to include in the list of practices; one comment the question needs clarification.	Included examples of practices.
Response to Item EG3	Three comments that faculty will not know how to respond because they aren't taught how to measure learning through assessment.	Included examples of how learning is measured.
Response to Item EG4	One comment to provide definition or examples of the kinds of data faculty could collect; e.g., test scores or prior learning assessments.	Included examples of how data can inform course or teaching changes/improvements.

Appendix R: Content Expert Analysis Transcripts

Item Set 1

Construct/Variable Perceived Levels of Functioning	Operational Definition of Variable	Item (Closed-ended)	Terms and concepts fundamentally mean the same thing to each participant?		Evidence of the degree to which the item measures the content it is intended to measure?		Evidence that the item covers the range of meanings included in the definition?	
F1. Faculty Values and Beliefs	Faculty values, attitudes, perceptions, and/or beliefs are respected, solicited, and considered in the development of institutional assessment practices.	To what extent are faculty values and beliefs about learning outcomes assessment considered or solicited in the development of assessment practices at your institution?	Yes 100%	No 0%	Yes 100%	No 0%	Yes 100%	No 0%
F2. Faculty Development Opportunities	Faculty development opportunities are plentiful, relevant, current, and available.	To what extent are faculty development opportunities related to learning outcomes assessment provided by your institution?	Yes 100%	No 0%	Yes 100%	No 0%	Yes 100%	No 0%
F3. Faculty Experience w/Assessment	Faculty understand what is expected of them and have ample opportunities to demonstrate proficiency and gain experience in assessment.	To what extent are you provided opportunities to gain experience with learning outcomes assessment practices at your institution?	Yes 100%	No 0%	Yes 75%	No 25%	Yes 100%	No 0%
F4. Collaborative Processes	Faculty are provided opportunities to work with other campus affiliates to create learning communities and supportive, collaborative environments.	To what extent are you provided collaborative opportunities to engage in learning outcomes assessment practices with other campus affiliates at your institution?	Yes 100%	No 0%	Yes 100%	No 0%	Yes 100%	No 0%

F5. Discipline/Peer Support	Faculty are encouraged to seek peer advice and experience, including those outside the institution.	To what extent are you encouraged to work with your discipline peers, including those outside your institution, on learning outcomes assessment practices at your institution?	Yes 100%	No 0%	Yes 100%	No 0%	Yes 100%	No 0%
F6. Resources/Time	Faculty are awarded the necessary time and/or resources to plan, develop, pilot, implement, adjust, and evaluate assessment strategies and processes within reasonable and efficient timeframes.	To what extent are you provided resources to effectively implement learning outcomes assessment practices at your institution (e.g., release time, staff, funding)?	Yes 75%	No 25%	Yes 75%	No 25%	Yes 75%	No 25%
F7. Embedded Assessment	Assessment language, processes, and outcomes are embedded into institutional policies, practices, and procedures.	To what extent are learning outcomes assessment practices at your institution embedded into institutional policies, practices, or procedures?	Yes 100%	No 0%	Yes 100%	No 0%	Yes 100%	No 0%
F8. Student Learning before Accountability	Assessment processes, programs, instruments, and activities are established in the service of student learning above all else, including accreditation mandates, legislative performance expectations, and/or public demands for increased accountability.	To what extent are learning outcomes assessment practices at your institution established for the primary purpose of student learning?	Yes 100%	No 0%	Yes 75%	No 25%	Yes 75%	No 25%

F9. Student Learning before Accountability	(Same as above)	To what extent are learning outcomes assessment practices at your institution established for the primary purpose of institutional accountability?	Yes 100%	No 0%	Yes 100%	No 0%	Yes 100%	No 0%
F10. Administrative/ Leadership Support	Assessment processes have influential and committed leadership and support, particularly at top administrative levels.	To what extent do the top administrative leaders at your institution support learning outcomes assessment practices?	Yes 100%	No 0%	Yes 100%	No 0%	Yes 100%	No 0%
F11. Student Involvement	Students are encouraged and provided opportunities to engage in assessment processes.	To what extent are students at your institution encouraged to participate in learning outcomes assessment practices?	Yes 100%	No 0%	Yes 100%	No 0%	Yes 100%	No 0%
F12. Rewards/Incentives	Rewards and incentives to participate in assessment processes are adopted systematically including pay and performance systems.	To what extent are you provided rewards or incentives to engage in learning outcomes assessment practices at your institution (e.g., stipends or awards)?	Yes 100%	No 0%	Yes 100%	No 0%	Yes 100%	No 0%
F13. Data Management/Use	Institutions provide training and educational opportunities in data collection, management, and use.	To what extent does your institution provide training or educational opportunities in data collection, data management, and data use in learning outcomes assessment practices?	Yes 75%	No 25%	Yes 50%	No 50%	Yes 75%	No 25%

Item Set 2

Construct/Variable Perceived Levels of Influence	Operational Definition of Variable	Item (Closed-ended)	Terms and concepts fundamentally mean the same thing to each participant?		Evidence of the degree to which the item measures the content it is intended to measure?		Evidence that the item covers the range of meanings included in the definition?	
I14. Faculty Values and Beliefs	Faculty values, attitudes, perceptions, and/or beliefs are respected, solicited, and considered in the development of institutional assessment practices.	To what extent do you believe your engagement with learning outcomes assessment increases when your beliefs and values about assessment are considered in institutional assessment practices?	Yes 100%	No 0%	Yes 100%	No 0%	Yes 100%	No 0%
I15. Faculty Development Opportunities	Faculty development opportunities are plentiful, relevant, current, and available.	To what extent do faculty development opportunities increase your engagement with learning outcomes assessment?	Yes 75%	No 25%	Yes 75%	No 25%	Yes 75%	No 25%
I16. Faculty Experience w/Assessment	Faculty understand what is expected of them and have ample opportunities to demonstrate proficiency and gain experience in assessment.	To what extent does practice or experience with assessment increase your engagement with learning outcomes assessment?	Yes 75%	No 25%	Yes 75%	No 25%	Yes 75%	No 25%
I17. Collaborative Processes	Faculty are provided opportunities to work with other campus affiliates to create learning communities and supportive, collaborative environments.	To what extent do opportunities to collaborate with other campus affiliates increase your engagement with learning outcomes assessment?	Yes 100%	No 0%	Yes 100%	No 0%	Yes 100%	No 0%

I18. Discipline/Peer Support	Faculty are encouraged to seek peer advice and experience, including those outside the institution, and to pursue scholarly activity related to assessment.	To what extent does working with your discipline peers, including those outside your institution, increase your engagement with learning outcomes assessment practices?	Yes 100%	No 0%	Yes 100%	No 0%	Yes 100%	No 0%
I19. Resources/Time	Faculty are awarded the necessary time and/or resources to plan, develop, pilot, implement, adjust, and evaluate assessment strategies and processes within reasonable and efficient timeframes.	To what extent do resources such as release time, staff, or funding increase your engagement with learning outcomes assessment practices?	Yes 100%	No 0%	Yes 100%	No 0%	Yes 100%	No 0%
I20. Embedded Assessment	Assessment language, processes, and outcomes are embedded into institutional policies, practices, and procedures.	To what extent does embedding learning outcomes assessment practices into institutional policies, practices, or procedures increase your engagement with learning outcomes assessment practices?	Yes 100%	No 0%	Yes 100%	No 0%	Yes 100%	No 0%
I21. Student Learning before Accountability	Assessment processes, programs, instruments, and activities are established in the service of student learning above all else, including accreditation mandates, legislative performance expectations, and/or public demands for increased accountability.	To what extent does establishing learning outcomes assessment practices for the primary purpose of student learning increase your engagement with learning outcomes assessment practices?	Yes 100%	No 0%	Yes 100%	No 0%	Yes 100%	No 0%

I22. Student Learning before Accountability	(Same as above)	To what extent does establishing learning outcomes assessment practices for the primary purpose of institutional accountability increase your engagement with learning outcomes assessment practices?	Yes 100%	No 0%	Yes 100%	No 0%	Yes 100%	No 0%
I23. Administrative/ Leadership Support	Assessment processes have influential and committed leadership and support, particularly at top administrative levels.	To what extent does support or involvement of top administrative leaders increase your engagement with learning outcomes assessment practices?	Yes 100%	No 0%	Yes 100%	No 0%	Yes 100%	No 0%
I24. Student Involvement	Students are encouraged and provided opportunities to engage in assessment processes.	To what extent does student involvement in assessment practices increase your engagement with learning outcomes assessment practices?	Yes 100%	No 0%	Yes 100%	No 0%	Yes 100%	No 0%
I25. Rewards/Incentives	Rewards and incentives to participate in assessment processes are adopted systematically including pay and performance systems.	To what extent do rewards or incentives such as stipends or awards increase your engagement with learning outcomes assessment practices?	Yes 100%	No 0%	Yes 100%	No 0%	Yes 100%	No 0%
I26. Data Management/Use	Institutions provide training and educational opportunities in data collection, management, and use.	To what extent does training or educational opportunities in data collection, data management, and data use increase your engagement with learning outcomes assessment practices?	Yes 100%	No 0%	Yes 75%	No 25%	Yes 75%	No 25%

Item Set 3

Construct/Variable Perceived Levels of Effectiveness	Operational Definition of Variable	Item (Closed-ended)	Terms and concepts fundamentally mean the same thing to each participant?		Evidence of the degree to which the item measures the content it is intended to measure?		Evidence that the item covers the range of meanings included in the definition?	
E27. Greater Satisfaction w/Institutional Assessment	Faculty exhibit or perceive greater levels of satisfaction with their institution's assessment efforts and strategies.	To what extent does your level of satisfaction with institutional assessment practices increase when you engage in learning outcomes assessment?	Yes 100%	No 0%	Yes 100%	No 0%	Yes 100%	No 0%
E28. Improved Teaching	Faculty levels of effectiveness in teaching performance improves.	To what extent do you believe your teaching improves when you engage in learning outcomes assessment?	Yes 100%	No 0%	Yes 100%	No 0%	Yes 100%	No 0%
E29. Improved Student Learning	Impacts on student learning are measurable, demonstrable, and linked directly to strategies implemented in the learning environment.	To what extent do you believe student learning improves when you engage in learning outcomes assessment?	Yes 100%	No 0%	Yes 100%	No 0%	Yes 100%	No 0%
E30. Learner-centered Culture	A learner-centered culture is nurtured, expected, and thrives.	To what extent do you believe a learner-centered culture is established when you engage in learning outcomes assessment?	Yes 100%	No 0%	Yes 100%	No 0%	Yes 100%	No 0%
E31. Increased Transparency/ Accountability	Transparency of student learning is ever-present and accountability to institutional goals is achieved.	To what extent do you believe accountability for institutional goals is established when you engage in learning outcomes assessment?	Yes 50%	No 50%	Yes 50%	No 50%	Yes 50%	No 50%

Item Set 4

Construct/Variable Faculty Engagement Practices	Operational Definition of Variable	Item (Open-ended)	Terms and concepts fundamentally mean the same thing to each participant?		Evidence of the degree to which the item measures the content it is intended to measure?		Evidence that the item covers the range of meanings included in the definition?	
EG1. Faculty Practices	Generally includes regular practices that inform faculty about students' learning; e.g., inquiry, discourse, group project, and individual progress reports, or evaluative methods at the end of a term or project; e.g., total exam scores or course grades.	In what learning outcomes assessment practices do you currently engage (e.g., rubrics, portfolios, exams, discourse, field experience, capstones)?	Yes 100%	No 0%	Yes 100%	No 0%	Yes 100%	No 0%
EG2. Faculty Reasons for Practice	Motivating factors or reasons that cultivate or inhibit faculty involvement, engagement, or participation in assessment activities at the classroom, program, or institutional level.	Why do you engage in these practices (e.g., personal motivation, professional obligation, student success)?	Yes 100%	No 0%	Yes 100%	No 0%	Yes 100%	No 0%
EG3. Evidence of Student Learning	How faculty know learning has transpired; e.g., scores, ratings, participation, portfolios, or skill development.	In what ways do these practices help you know that student learning has occurred (e.g., students demonstrate progress, attainment of goals is identified)?	Yes 100%	No 0%	Yes 100%	No 0%	Yes 100%	No 0%
EG4. How Data are Used	Type of evidence that aid in making changes to courses; e.g., course evaluations, student self-assessments, peer observations, and employer evaluations.	What kind of data inform you about changes you may need to make to your courses (e.g., exam scores, course evaluations, pretest/posttests)?	Yes 50%	No 50%	Yes 50%	No 50%	Yes 50%	No 50%

Note. (Format adapted from Grant & Davis, 1997. Yes = 1; No = 2)

Appendix S: Content Expert Comments and Modifications to Instrument

Item	Comments	Modification/Rationale
Response to Item F1	The construct is "solicited AND considered" whereas the survey question is "AND/OR". This could alter what you are looking for.	Changed item to include "AND".
Response to Item F3	The question may cover the range of meaning, but the construct states "proficiency". I'm not sure that you get to proficiency with the question – it is more about opportunity.	Amended item to read: "To what extent does your institution provide opportunities to gain experience and demonstrate proficiency with learning outcomes assessment?
Response to Item F6	The question asks the reader to bring in a number of varying experiences in what they perceive as resources. If you don't care what that the resources could be different with each faculty member, then I would change my responses to all yes's. As it reads, there is a lot of variability in the statements.	None. Resources will be different across institutions. Study means to examine differences in opinion about whether all types of resources are necessary to enhance engagement, not differences in resources themselves.
Response to Item F7	The questions gets at the intent but there are many potential interpretations. I think greater clarification of meaning would be helpful.	Added examples of "mission statements" and "faculty pay policies" to item.
Response to Item F13	Whereas I think that the intent is there and that it fits within the range, I have a concern with the use of "and". This implies that my institution has to provide training in all of these areas. Would "or" work as a substitute?	Changed item to include "OR".
Response to Item F13	Too many response choices (data collection, mgt., and use). You won't know which one the respondents are referring to, so change the construct or change the item.	Changed item to include "OR".
Response to Item I15	To me this reads as though you could use any type of faculty development. I would suggest inserting "learning assessment" faculty development.	Added the phrase "outcomes assessment" to faculty development.
Response to Item I26	This is the same issue for me as in the first section – too many items to choose what influences you to participate. I could say well that collection does but management doesn't. How would I respond to the question?	Changed item to include "OR".

Response to Item E27	I don't have an issue with this as you've constructed the question. It is more with the idea of participation and satisfaction with a process. I understand the research bears this out, but it seems like a non-issue to me. You can be satisfied with a process even if you don't participate. This one is confusing.	Added words "your institution's assessment practices" to clarify.
Response to Item E31	I don't see that this question aligns with the construct. If I engage in assessment then I believe that the institution being accountable? I am having a hard time making the connection. What about the issue of transparency of student learning being related to accountability?	Changed item to read: "To what extent do you believe accountability for institutional student learning goals is transparent when you engage in learning outcomes assessment?
Response to Item EG4	The parenthetical items could be misleading. I would want to know if faculty are using direct or indirect measures of assessment or both to inform them. Faculty tend to use evaluation data since that is their charge – assign grades. Whereas programs and courses use direct measures for assessment to determine needed changes to the curriculum. So by including the samples, I think you lead them to the answers they would likely write down.	None. Cognitive interviews conflict here - they requested examples, whereas this expert says examples are leading. Due to adjunct faculty comments that assessment terms are not fully understood, and the high proportion of part-time faculty in the CCCS population, the examples will remain intact.
Response to Total Scale	All of the items inquire about how various institutional conditions increase engagement, and most conditions would be expected to increase engagement. However, some (such as assessment for the purpose of accountability) might decrease perceived engagement. Could the items be worded: "To what extent does the specific institutional condition affect (rather than increase) engagement?"	None. Literature claims institutional conditions will increase faculty engagement w/LOA, thus the goal of the research is to investigate the conditions that increase faculty engagement, not decrease or affect it in either direction.
Response to Total Scale	All of the items inquire about how faculty engagement produces the 5 indicators of effectiveness, and in most cases faculty engagement would be expected to increase effectiveness. However, it is possible that satisfaction levels might decrease after engagement. Could the items be worded "To what extent does engagement in learning outcomes assessment affect (rather than increase) the production of the various outcomes (such as satisfaction level)?"	None. Literature claims institutional conditions will increase faculty engagement w/LOA, thus the goal of the research is to investigate the conditions that increase faculty engagement, not decrease or affect it in either direction.

Response to Total Scale	Why are there two surveys? Seems to me you could administer one and ask participants to choose which group they are in, reducing any management issues for your administration parties and centralizing your data collection.	Condensed two surveys into one - used “skip logic” to direct participants to the appropriate survey depending on group.

Appendix T: Content Analysis of Open-Ended Items

Item 1: In what learning outcomes assessment practices do you engage?		
	Predetermined Criteria	Count/Frequencies
Words or Terms	Portfolios, Rubrics, Projects, Experiential, Field, Equipment, Survey, Interview, Discourse, Questions, Dialogue, Inquiry, Demonstrate, Exams, Writing, Skills, Tests, Essays, Pre-test/Post-tests, Performances, Presentations, Observations, Practice, Discussions, Lab, Think-Alouds, Talk-Alouds, Self-assessment, Peer Assessment, Feedback, Library, Computer	Rubrics: 3 or 11%; Projects: 6 or 21%; Field: 7 or 25%; Questions: 3 or 11%; Exams: 6 or 21%; Writing: 8 or 29%; Pretest/Posttest: 3 or 11%; Skills: 3 or 11%; Essays: 7 or 25%; Demonstrate: 1 or 4%; Portfolios: 1 or 4%; Observations: 2 or 7%
Themes	Capstone experiences; Written work; Group project; Computer-simulated tasks; Laboratory work; Skills-based assignments; Performance-based activities; Field experiences; Journals and logs; Service or community learning experiences; Embedded assignments	Written work: 6 or 21%; Lab work: 3 or 11%; Skills-based assignments: 5 or 18%; Group projects: 8 or 29%: Capstone experiences: 1 or 4%; Field experiences: 2 or 7%
Item 2: Why do you engage with these practices?		
	Predetermined Criteria	Matches
Words or Terms	Learning; Achievement; Success; Motivated; Obligated; Expectation; Incentive; Reward; Stipend; Encourage; Responsible; Desire; Appreciate; Self-learning; Empowerment; Growth; Directive; Accountability; Management; Effectiveness	Learning: 14 or 50%; Responsibility: 3 or 11%; Growth: 4 or 14%; Achievement: 4 or 14%; Success: 2 or 7%; Obligated: 1 or 4%
Themes	Job responsibility; Department or Discipline expectation; Directives from administration; Conference attendance; Understand value-add; Classroom management tool; Helps students learn; Institutional activity; Collaborative curricular practice; Improve pedagogy and curricula; Learner-centered practice	Helps students learn: 15 or 54%; Job responsibility: 3 or 11%; Directives from administration: 1 or 4%; Improve teaching: 1 or 4%
Item 3: How do you know student learning has occurred?		
	Predetermined Criteria	Matches
Words or Terms	Analysis; Application; Evaluation; Feedback; Directives; Prompts; Grades; Reports; Questioning; Participation; Leadership; Engaged; Skills; Language; Knowledge; Ability; Attitude; Behavior; Change; Demonstrate	Feedback: 3 or 11%; Rubrics: 9 or 32%; Evaluations: 5 or 18%; Grades: 8 or 29%; Reports: 6 or 21%; Change: 2 or 7%
Themes	Ratings of student skills by field experience supervisors or employers; Summaries and assessments of electronic class discussion threads; Course evaluations; Student feedback or ratings; Progress reports; Responses to questions; Scores gains; Observations of student behavior; Student reflections; Growth and development	Student feedback or ratings: 4 or 14%; Student growth and development: 5 or 18%; Course evaluations: 5 or 18%; Progress reports: 6 or 21%

Item 4: What kind of data inform changes you make to your teaching?		
	Predetermined Criteria	Matches
Words or Terms	Grades; Scores; Reports; Tests; Exams; Answers; Evaluations; Rubrics; Interviews; Documentation; Counts; Performance	Grades: 10 or 38%; Exams: 12 or 43%; Evaluations: 5 or 18%; Rubrics: 2 or 7%
Themes	Scores and pass rates on appropriate licensure or certification exams; Scores on rubrics; Scores on locally designed multiple choice or essay tests; Classroom response systems (clickers); Feedback from computer tasks; Scores on tests required for further study; Graduation rates; Retention rates; Honors, awards, or scholarships earned by students; Placement rates; Achievement of life goals	Scores on rubrics: 3 or 11%; Scores on tests: 6 or 21%; Achievement of goals: 1 or 4%; Feedback from computer-related tasks: 1 or 4%

Appendix U: Approval from DU Office of Research and Sponsored Programs on Placement of Informed Consent

From: Emily Caldes

Sent: Thursday, October 18, 2012 8:18 PM

To: Jennifer Williams

Subject: RE: Question about Protocol

I think you are fine. Go ahead. Original protocol #2012-2220.

Emily Caldes, MA

Research Compliance

303-871-4052

emily.caldes@du.edu

-----Original Message-----

From: Jennifer Williams

Sent: Thursday, October 11, 2012 2:23 PM

To: Emily Caldes

Subject: Question about Protocol

Hi Emily,

I submitted an IRB protocol this past summer and received approval from the IRB in July to administer a pilot survey to a small sample of faculty at Colorado Mountain College. I have a question, however, about a slight change I'd like to make. I first conducted the pilot survey via email/webhost and put the informed consent in an email to college administrators, who sent it on to the participants. After receiving comments and suggestions from participants, I'd like to move the informed consent into the survey itself

for the field administration of the survey. This way, participants actually have to elect the option “By beginning this survey, you acknowledge that you have read this information and agree to participate in this research”. rather than just reading it in an email and possibly skipping it . Put simply, my request is to change the placement of the informed consent from the email to the first page of the survey. No language has been changed in the protocol. Do you think I will need to re-submit this to the IRB?

Thank you for your help!

Best,

Jennifer

Appendix V: Amended EFEA Survey Instrument

CCCS Faculty Engagement with Learning Outcomes Assessment

Survey Introduction

Welcome! Participation in this study should take about 15-20 minutes of your time. Participation will involve responding to seven demographic questions and 35 questions about faculty engagement with student learning outcomes assessment. There are also 27 items that will help estimate the survey's validity. Participation in this project is strictly voluntary. The risks associated with this project are minimal. If, however, you experience discomfort you may discontinue your participation at any time. Your right to choose not to answer any questions that may make you feel uncomfortable is of the utmost importance. Refusal to participate or withdrawal from participation will involve no penalty or loss of benefits to which you are otherwise entitled.

Your responses will be anonymous. That means that no one will be able to connect your identity with the information you give. Your email address has not been disclosed to the researcher. Please do not write your name anywhere on the questionnaire. Your return of the questionnaire will signify your consent to participate in this project. If you would like to enter the drawing for a 2012 Kindle Fire HD electronic tablet, you may enter your email address or telephone number in the entry box located at the end of this survey.

If you have any concerns or complaints about how you were treated in the questionnaire, please contact Paul Olk, Chair, Institutional Review Board for the Protection of Human Subjects, at 303-871-4531, or you may email du-irb@du.edu, Office of Research and Sponsored Programs or call 303-871-4050 or write to either at the University of Denver, Office of Research and Sponsored Programs, 2199 S. University Blvd., Denver, CO 80208-2121.

Thank you again for your participation!

***1. I agree to the conditions as stated above and provide my informed consent of participation.**

- ○ Yes
- ○ No

Current Job Responsibility

***1. Please select your current primary area of responsibility at your institution (select only one).**

- ○ Faculty Member
- ○ Academic Administrator

Part A. Faculty Demographics

1. Please indicate your faculty position type:

- ○ Full Time (Assistant, Associate, Full Professor or Instructor)
- ○ Part-Time (Adjunct or Contract)

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2. Please indicate your Primary CCCS campus location (select only one):

- Arapahoe Community College
- Colorado Community College Online
- Colorado Northwestern Community College
- Community College of Aurora
- Community College of Denver
- Front Range Community College
- Lamar Community College
- Morgan Community College
- Northeastern Junior College
- Otero Junior College
- Pikes Peak Community College
- Pueblo Community College
- Red Rocks Community College
- Trinidad State Junior College

3. What is your current education level?

- Licensure or specialty degree
- Associate degree
- Bachelor degree
- Master degree
- Doctorate degree

4. How many years of experience do you have with learning outcomes assessment?

5. What is your present age?

CCCS Faculty Engagement with Learning Outcomes Assessment

6. What is your gender?

- ○ Female
- ○ Male
- ○ Transgender

7. Which race/ethnicity best describes you? (Please choose only one.)

- ○ American Indian or Alaskan Native
- ○ Asian / Pacific Islander
- ○ Black or African American
- ○ Hispanic American
- ○ White / Caucasian

Part A. Academic Administrator Demographics

1. Please indicate your academic administrator position type (includes Assistant or Associate):

- ○ Vice President of Instruction
- ○ Dean of Instruction
- ○ Dean of Academic/Technical Program
- ○ Program Director

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2. Please indicate your Primary CCCS campus location (select only one):

- Arapahoe Community College
- Colorado Community College Online
- Colorado Northwestern Community College
- Community College of Aurora
- Community College of Denver
- Front Range Community College
- Lamar Community College
- Morgan Community College
- Northeastern Junior College
- Otero Junior College
- Pikes Peak Community College
- Pueblo Community College
- Red Rocks Community College
- Trinidad State Junior College

3. What is your current education level?

- Licensure or specialty degree
- Associate degree
- Bachelor degree
- Master degree
- Doctorate degree

4. How many years of experience do you have with learning outcomes assessment?

5. What is your present age?

CCCS Faculty Engagement with Learning Outcomes Assessment

6. What is your gender?

- Female
- Male
- Transgender

7. Which race/ethnicity best describes you? (Please choose only one.)

- American Indian or Alaskan Native
- Asian / Pacific Islander
- Black or African American
- Hispanic American
- White / Caucasian

Instructions to Participants

Please take 15-20 minutes to answer the following questions about your engagement with student learning outcomes assessment. Learning outcomes assessment is defined as any educational process that fosters continuous attention to student learning and promotes institutional accountability. Accountability is defined as the responsibility to meet institutional goals and objectives. Assessment practices are defined as policies, activities, processes, procedures, systems, and/or measurements designed to facilitate student learning. Examples include classroom, department, program, or institutional activities designed to assess student learning such as portfolios, rubrics, integrated curricula, and student interviews.

Part B. Please select the following statement that most reflects your perce...

The scale used in this survey is 1-4. The response definitions are as follows:

1 = Not at All (Reflects a zero level or never occurs)
2 = Very Little (Reflects a small amount or minimal level of occurrence)
3 = Moderate (Reflects a modest amount or standard level of occurrence)
4 = Very Much (Reflects a significant amount or maximum level of occurrence)

1. To what extent are faculty values and beliefs about learning outcomes assessment considered or solicited in the development of assessment practices at your institution?

- 1 = Not at All
- 2 = Very Little
- 3 = Moderate
- 4 = Very Much

CCCS Faculty Engagement with Learning Outcomes Assessment

2. To what extent are faculty development opportunities in learning outcomes assessment provided by your institution?

- 1 = Not at All
- 2 = Very Little
- 3 = Moderate
- 4 = Very Much

3. To what extent are faculty provided opportunities to gain experience or practice with learning outcomes assessment at your institution?

- 1 = Not at All
- 2 = Very Little
- 3 = Moderate
- 4 = Very Much

4. To what extent are faculty provided collaborative opportunities to engage in learning outcomes assessment at your institution (e.g., with administrators, student services, or other campus affiliates)?

- 1 = Not at All
- 2 = Very Little
- 3 = Moderate
- 4 = Very Much

5. To what extent are faculty encouraged to work with discipline peers, including those outside your institution, on learning outcomes assessment at your institution?

- 1 = Not at All
- 2 = Very Little
- 3 = Moderate
- 4 = Very much

CCCS Faculty Engagement with Learning Outcomes Assessment

6. To what extent are faculty provided resources to effectively implement learning outcomes assessment at your institution (e.g., release time, staff, funding)?

- 1 = Not at All
- 2 = Very Little
- 3 = Moderate
- 4 = Very Much

7. To what extent are learning outcomes assessment practices at your institution incorporated into institutional policies, practices, or procedures (e.g., mission statement, pay/promotion policies)?

- 1 = Not at All
- 2 = Very Little
- 3 = Moderate
- 4 = Very Much

8. To what extent are learning outcomes assessment practices established for the primary purpose of student learning at your institution?

- 1 = Not at All
- 2 = Very Little
- 3 = Moderate
- 4 = Very Much

9. To what extent are learning outcomes assessment practices established for the primary purpose of institutional accountability at your institution (e.g., accreditation)?

- 1 = Not at All
- 2 = Very Little
- 3 = Moderate
- 4 = Very Much

CCCS Faculty Engagement with Learning Outcomes Assessment

10. To what extent do the top administrative leaders at your institution support learning outcomes assessment (e.g., president, vice presidents, CEO's)?

- 1 = Not at All
- 2 = Very Little
- 3 = Moderate
- 4 = Very Much

11. To what extent are students encouraged to participate in learning outcomes assessment at your institution?

- 1 = Not at All
- 2 = Very Little
- 3 = Moderate
- 4 = Very Much

12. To what extent are faculty provided rewards or incentives to engage in learning outcomes assessment at your institution (e.g., stipends or awards)?

- 1 = Not at All
- 2 = Very Little
- 3 = Moderate
- 4 = Very Much

13. To what extent does your institution provide training or educational opportunities in data collection, data management, or data use in learning outcomes assessment?

- 1 = Not at All
- 2 = Very Little
- 3 = Moderate
- 4 = Very Much

CCCS Faculty Engagement with Learning Outcomes Assessment

14. To what extent does faculty engagement with learning outcomes assessment increase when faculty beliefs and values about assessment are considered or solicited in institutional assessment practices?

- 1 = Not at All
- 2 = Very Little
- 3 = Moderate
- 4 = Very Much

15. To what extent do faculty development opportunities in assessment increase faculty engagement with learning outcomes assessment?

- 1 = Not at All
- 2 = Very Little
- 3 = Moderate
- 4 = Very Much

16. To what extent does practice or experience with assessment increase faculty engagement with learning outcomes assessment?

- 1 = Not at All
- 2 = Very Little
- 3 = Moderate
- 4 = Very Much

17. To what extent do opportunities to collaborate with administrators, student services, or other campus affiliates increase faculty engagement with learning outcomes assessment?

- 1 = Not at All
- 2 = Very Little
- 3 = Moderate
- 4 = Very Much

CCCS Faculty Engagement with Learning Outcomes Assessment

18. To what extent does working with discipline peers, including those outside your institution, increase faculty engagement with learning outcomes assessment?

- 1 = Not at All
- 2 = Very Little
- 3 = Moderate
- 4 = Very Much

19. To what extent do resources such as release time, staff, or funding increase faculty engagement with learning outcomes assessment?

- 1 = Not at All
- 2 = Very Little
- 3 = Moderate
- 4 = Very Much

20. To what extent does incorporating assessment policies into institutional policies and procedures increase faculty engagement with assessment (e.g., mission statement, pay/promotion policies)?

- 1 = Not at All
- 2 = Very Little
- 3 = Moderate
- 4 = Very Much

21. To what extent does establishing assessment practices for the purpose of student learning increase faculty engagement with learning outcomes assessment?

- 1 = Not at All
- 2 = Very Little
- 3 = Moderate
- 4 = Very Much

CCCS Faculty Engagement with Learning Outcomes Assessment

22. To what extent does establishing assessment practices for the purpose of institutional accountability increase faculty engagement with learning outcomes assessment (e.g., accreditation)?

- 1 = Not at All
- 2 = Very Little
- 3 = Moderate
- 4 = Very Much

23. To what extent does support or involvement of top administrative leaders increase faculty engagement with learning outcomes assessment (e.g., president, vice presidents, CEO's)?

- 1 = Not at All
- 2 = Very Little
- 3 = Moderate
- 4 = Very Much

24. To what extent does student involvement in assessment practices increase faculty engagement with learning outcomes assessment?

- 1 = Not at All
- 2 = Very Little
- 3 = Moderate
- 4 = Very Much

25. To what extent do incentives such as stipends or rewards increase faculty engagement with learning outcomes assessment?

- 1 = Not at All
- 2 = Very Little
- 3 = Moderate
- 4 = Very Much

CCCS Faculty Engagement with Learning Outcomes Assessment

26. To what extent does training or education in data collection, data management, or data use increase faculty engagement in learning outcomes assessment?

- 1 = Not at All
- 2 = Very Little
- 3 = Moderate
- 4 = Very Much

27. To what extent do you believe faculty satisfaction with institutional assessment increases when faculty engage in learning outcomes assessment?

- Not at All
- Very Little
- Moderate
- Very Much

28. To what extent do you believe teaching improves when faculty engage in learning outcomes assessment?

- 1 = Not at All
- 2 = Very Little
- 3 = Moderate
- 4 = Very Much

29. To what extent do you believe student learning improves when faculty engage in learning outcomes assessment?

- 1 = Not at All
- 2 = Very Little
- 3 = Moderate
- 4 = Very Much

30. To what extent do you believe a learner-centered culture is established when faculty engage in learning outcomes assessment (e.g., everyone is a learner)?

- 1 = Not at All
- 2 = Very Little
- 3 = Moderate
- 4 = Very Much

CCCS Faculty Engagement with Learning Outcomes Assessment

31. To what extent do you believe accountability for institutional goals is established when faculty engage in learning outcomes assessment?

- 1 = Not at All
- 2 = Very Little
- 3 = Moderate
- 4 = Very Much

Faculty Learning Outcomes Assessment Practices

This section includes four questions specifically for faculty members at your institution. If you are not a faculty member, you will be re-directed to the final section of the survey.

1. Is your primary job responsibility as a faculty member at your institution?

- Yes
- No

Part C. Learning Outcomes Assessment Practices

Please select all responses that apply.

CCCS Faculty Engagement with Learning Outcomes Assessment

1. In what learning outcomes assessment practices do you currently engage? (Select all that Apply)

- ☐ Capstone Experiences
- ☐ Classroom Discussion
- ☐ Computer/Technology
- ☐ Exams
- ☐ Experiential Education
- ☐ Field Experiences
- ☐ Group Projects
- ☐ Lab work
- ☐ Observations
- ☐ Pretests/Post-tests
- ☐ Portfolios
- ☐ Rubrics
- ☐ Self or Peer Assessments
- ☐ Skills-based Assignments
- ☐ Written essays

Other (please specify)

CCCS Faculty Engagement with Learning Outcomes Assessment

2. Why do you engage in these practices? (Select all that Apply)

- ☐ Classroom Management
- ☐ Contribute to Scholarship/Research
- ☐ Department Expectation
- ☐ Effective Teaching
- ☐ Improve Curricula
- ☐ Improve Teaching
- ☐ Institutional Expectation
- ☐ Job Responsibility
- ☐ Learner-centered Practice
- ☐ Motivate Students
- ☐ Obligation
- ☐ Self-Learning
- ☐ Student Achievement of Goals
- ☐ Student Growth and Development
- ☐ Student Learning Success

Other (please specify)

CCCS Faculty Engagement with Learning Outcomes Assessment

3. How do you know student learning has occurred? (Select all that Apply)

- ☐ Course Evaluation Feedback
- ☐ Data Analysis
- ☐ Documentation
- ☐ Electronic Summaries/Reports
- ☐ Logs/Journals
- ☐ Observations
- ☐ Progress Reports
- ☐ Placement Rates
- ☐ Rubric Outcomes
- ☐ Score/Grade Improvements
- ☐ Student Ability/Skill
- ☐ Student Feedback
- ☐ Student Growth or Change
- ☐ Student Interviews
- ☐ Student Attitude/Language

Other (please specify)

CCCS Faculty Engagement with Learning Outcomes Assessment

4. What kind of data inform you about changes you may need to make to your teaching? (Select all that Apply)

- ☐ Accreditation Reports
- ☐ Classroom Response System Reports
- ☐ Course Evaluations
- ☐ Employer Feedback
- ☐ Graduation Rates
- ☐ Placement Rates
- ☐ Program Reports
- ☐ Retention Rates
- ☐ Scores on Licensure/Certification exams
- ☐ Student Grades
- ☐ Student Honors/Awards
- ☐ Student Interviews
- ☐ Student Responses/Answers
- ☐ Student Performance
- ☐ Writing Improvement

Other (please specify)

Part D. ISSA Items

These questions are derived from the 1999 Institutional Support for Student Assessment survey. They are used to estimate validity of the current instrument. Please provide your perceptions of the following:

CCCS Faculty Engagement with Learning Outcomes Assessment

1. Please indicate the extent to which each of the following policies and practices exist at your institution.

	Not Done at All	Done in a Few Depts.	Done in Some Depts.	Done in Many Depts.	Done in Most Depts.
1. Faculty evaluation for promotion considers evidence of student performance in their classes (not just student teaching evaluation)	○	○	○	○	○
2. Faculty evaluation for annual salary and merit increases incorporates evidence of student performance	○	○	○	○	○
3. Faculty scholarship on or innovative uses of student assessment is considered in promotion, tenure, or salary reviews	○	○	○	○	○
4. Faculty willingness to use or to participate in student assessment activities is considered in promotion, tenure, or salary reviews	○	○	○	○	○
5. Faculty receive public recognition or awards for innovative or effective use of student assessment	○	○	○	○	○
6. Faculty hiring process considers experience or skill in student assessment	○	○	○	○	○
7. Faculty are encouraged to assess student learning in their classes	○	○	○	○	○

CCCS Faculty Engagement with Learning Outcomes Assessment

2. To what extent has the use of information available from your institution's assessment process influenced the following actions?

	No Action, Influence Unknown	Action Taken, Data Not Influential	Action Taken, Data Somewhat Influential	Action Taken, Data Very Influential
1. Revising your undergraduate academic mission or goals	○	○	○	○
2. Designing or reorganizing academic programs or majors	○	○	○	○
3. Designing or reorganizing student affairs units	○	○	○	○
4. Allocating resources to academic units	○	○	○	○
5. Modifying student assessment plans, policies, or processes	○	○	○	○
6. Deciding faculty promotion and tenure	○	○	○	○
7. Deciding faculty salary increases or rewards (release time, travel funds, etc.)	○	○	○	○
8. Revising or modifying general education curriculum	○	○	○	○
9. Creating or modifying student out-of-class learning experiences (e.g., internships, service learning)	○	○	○	○
10. Creating or modifying distance learning initiatives	○	○	○	○
11. Modifying instructional or teaching methods	○	○	○	○
12. Modifying student academic support services (e.g. advising, tutoring)	○	○	○	○

CCCS Faculty Engagement with Learning Outcomes Assessment

3. Have you been able to document the impact of student assessment information on the following institutional indicators?

	Do Not Know	Negative Impact	No Known Impact	Positive Impact
1. Affected campus discussions of undergraduate education	○	○	○	○
2. Contributed to faculty satisfaction	○	○	○	○
3. Contributed to faculty interest in teaching	○	○	○	○
4. Led to changes in instructional or teaching methods used	○	○	○	○
5. Contributed to student satisfaction	○	○	○	○
6. Affected student retention or graduation rates	○	○	○	○
7. Affected student grade performance	○	○	○	○
8. Affected student achievement on external examinations (e.g., professional licensure, GRE)	○	○	○	○

Raffle Drawing Contact Information

1. Please provide your email address or telephone number if you wish to enter the random drawing for a 2012 Kindle Fire HD tablet! (This information will not be linked to your survey responses and will be discarded after the drawing.)

Appendix W: Missing Values Frequencies for Faculty LOA Practices Variables

Missing data	Complete	Missing	Totals	Missing %
Part III. Faculty LOA practices				
Examples of practice				
Capstone Experiences	75	527	602	88%
Classroom Discussion/Lectures	363	239	602	40%
Computers/Technology	238	364	602	60%
Exams	363	239	602	40%
Experiential Education	116	486	602	81%
Field Experiences	105	497	602	83%
Group Projects	191	411	602	68%
Labwork	163	439	602	73%
Observations	155	447	602	74%
Pretests/Post-tests	130	472	602	78%
Portfolios	62	540	602	90%
Rubrics	264	338	602	56%
Self or Peer Assessments	156	446	602	74%
Skills-based Assessments	228	374	602	62%
Written Essays	265	337	602	56%
Reasons for engaging				
Classroom Management	176	426	602	71%
Scholarship/Research	62	540	602	90%
Department Expectation	179	423	602	70%
Effective Teaching	391	211	602	35%
Improve Curricula	206	396	602	66%
Improve Teaching	335	267	602	44%
Institutional Expectation	147	455	602	76%
Job Responsibility	238	364	602	60%
Learner-centered Practice	245	357	602	59%
Motivate Students	337	265	602	44%
Obligation	84	518	602	86%
Self-Learning	186	416	602	69%
Student Achievement	251	351	602	58%

Student Growth	330	272	602	45%
Student Learning	335	267	602	44%
Evidence of learning				
Data Analysis	160	442	602	73%
Documentation	144	458	602	76%
Electronic Reports	61	541	602	90%
Logs/Journals	64	538	602	89%
Observations	275	327	602	54%
Progress Reports	106	496	602	82%
Placement Rates	43	559	602	93%
Rubric Outcomes	211	391	602	65%
Score/Grade Improvements	334	268	602	45%
Student Ability/Skill Increases	318	284	602	47%
Student Feedback	310	292	602	49%
Student Growth/Change	298	304	602	50%
Student Interviews	79	523	602	87%
Student Attitude/Language	223	379	602	63%
Accreditation Reports	44	558	602	93%
How data are used				
Classroom Response Reports	77	525	602	87%
Course Evaluations	350	252	602	42%
Employer Feedback	170	432	602	72%
Graduation Rates	77	525	602	87%
Placement Rates	70	532	602	88%
Program Reports	59	543	602	90%
Retention Rates	185	417	602	69%
Scores on Licensure/Certification	55	547	602	91%
Student Grades	353	249	602	41%
Student Honors/Awards	43	559	602	93%
Student Interviews	106	496	602	82%
Student Responses/Answers	300	302	602	50%
Student Performance	353	249	602	41%
Writing Improvement	167	435	602	72%

Appendix X: General Wave Analysis for Academic Leaders and Faculty by Campus

Wave analysis	Academic leaders								
Campus	N	Week 1	Week 2	Week 3	Week 4	Week 5	Total	Inst. rate	Total rate
ACC	9	3	4	1	0	0	8	89%	8%
CCCOnline	8	6	0	1	0	1	8	100%	8%
CNCC	3	0	0	1	0	0	1	33%	1%
CCA	8	0	3	1	0	0	4	50%	4%
CCD	7	0	0	5	1	0	6	86%	6%
FRCC	10	0	5	2	0	1	8	80%	8%
LCC	3	0	0	1	0	0	1	33%	1%
MCC	5	3	0	1	1	0	5	100%	5%
NJC	5	3	0	1	0	1	5	100%	5%
OJC	3	0	0	2	0	1	3	100%	3%
PPCC	10	0	0	3	1	1	5	50%	5%
PCC	9	1	0	1	0	0	2	22%	2%
RRCC	7	0	0	1	1	2	4	57%	4%
TSJC	10	1	8	1	0	0	10	100%	10%
Missing	0	3	3	3	1	0	10	N/A	10%
Subtotal	97	20	23	25	5	7	80	N/A	82%
Wave analysis	Faculty								
Campus	N	Week 1	Week 2	Week 3	Week 4	Week 5	Total	Inst. rate	Total rate
ACC	488	24	23	10	2	11	70	14%	1%
CCCOnline	165	90	11	5	1	0	107	65%	2%
CNCC	92	9	0	3	0	0	12	13%	0%
CCA	429	2	24	12	0	2	40	9%	1%
CCD	557	2	12	18	1	3	36	6%	1%
FRCC	1156	6	102	39	6	0	153	13%	3%
LCC	57	0	3	1	0	0	4	7%	0%
MCC	167	5	1	1	0	0	7	4%	0%
NJC	90	22	3	4	0	2	31	34%	1%
OJC	83	1	8	4	1	9	23	28%	0%
PPCC	856	4	0	14	2	2	23	3%	0%
PCC	429	0	0	11	0	1	12	3%	0%
RRCC	532	1	15	7	1	0	24	5%	0%

TSJC	153	8	22	4	0	0	34	22%	1%
Missing	0	1	11	14	1	0	26	N/A	0%
Subtotal	5254	175	235	147	15	30	602	11%	11%

Appendix Y: Statistical Comparison of EFEA Scale Variables by Response Wave

Total population						
Scale/variables	Wave	N	Mean	SD	t-value	Sig.
1st vs. 2nd wave						
Total Scale (31 items)	Week 1	122	90.93	16.69	0.934	.351
	Week 2	156	89.08	16.04		
IV1 FUNCTION (13 items)	Week 1	136	36.04	7.73	0.257	.797
	Week 2	183	35.81	7.59		
IV2 INFLUENCE (13 items)	Week 1	133	39.29	7.56	1.87	.063
	Week 2	176	35.57	8.28		
DV1 EFFECT (5 items)	Week 1	148	16.88	2.56	3.09	.002
	Week 2	183	15.85	3.32		
2nd vs. 3rd wave						
Total Scale (31 items)	Week 2	156	89.08	16.04	-0.168	.866
	Week 3	84	89.43	13.34		
IV1 FUNCTION (13 items)	Week 2	183	35.81	7.59	0.779	.437
	Week 3	100	35.1	6.97		
IV2 INFLUENCE (13 items)	Week 2	176	37.57	8.28	-0.629	.530
	Week 3	92	38.22	7.3		
DV1 EFFECT (5 items)	Week 2	183	15.85	3.32	-0.907	.365
	Week 3	109	16.21	3.18		
3rd vs. 4th wave						
Total Scale (31 items)	Week 3	84	89.43	13.34	-1.68	.097
	Week 4	13	96	11.63		
IV1 FUNCTION (13 items)	Week 3	100	35.1	6.97	-1.69	.094
	Week 4	13	38.54	6.24		
IV2 INFLUENCE (13 items)	Week 3	92	38.22	7.3	-1.53	.129
	Week 4	12	41.58	5.84		
DV1 EFFECT (5 items)	Week 3	109	16.21	3.18	0.047	.963
	Week 4	12	16.17	2.41		
4th vs. 5th wave						
Total Scale (31 items)	Week 4	13	96	11.63	1.01	.321
	Week 5	26	91.88	12.26		

IV1 FUNCTION (13 items)	Week 4	13	38.54	6.24	1.1	.278
	Week 5	25	36.08	6.66		
IV2 INFLUENCE (13 items)	Week 4	12	41.58	5.84	0.47	.641
	Week 5	23	40.7	5.01		
DV1 EFFECT (5 items)	Week 4	12	16.17	2.41	-0.197	.845
	Week 5	24	16.38	3.24		

Appendix Z: CCCS Academic Leader Descriptives by Subscale

Academic leaders						
Demographic characteristic	n	Range	Mean	SD	Skewness	Kurtosis
FUNCTION subscale						
Position Type						
VP of Instruction	7	28-47	38.57	5.99	-0.46	1.25
Dean of Instruction	11	24-47	32.91	7.11	1.11	0.36
Dean of Academic/Technical Program	10	23-51	36	8.93	0.44	-0.28
Program Director	23	18-48	36.04	8.6	-0.52	-0.29
Primary CCCS Location						
ACC	8	24-44	32.63	6.69	0.584	-0.65
CCCOnline	3	34-44	40	5.29	-1.46	.
CNCC	1	33-33	33	.	.	.
CCA	3	28-38	32.67	5.03	0.59	.
CCD	4	19-46	29.75	11.59	1.26	1.96
FRCC	4	31-48	38.5	8.81	0.18	-4.99
LCC	0	.	.	.	.	.
MCC	5	34-47	40	5.34	0.43	-1.77
NJC	4	28-38	33.25	4.57	-0.19	-3.2
OJC	2	28-38	33	7.07	.	.
PPCC	4	26-51	39.5	12.4	-0.18	-4.75
PCC	1	37-37	37	.	.	.
RRCC	3	38-47	41	5.19	1.7	.
TSJC	9	18-48	35.44	10	-0.59	-0.29
Current Education Level						
Licensure or specialty degree	1	38-38	38	.	.	.
Associate Degree	1	39-39	39	.	.	.
Bachelor Degree	6	26-44	36	5.97	-0.66	1.59
Master Degree	28	18-51	36.07	8.23	-0.19	-0.78
Doctoral Degree	15	25-48	34.53	7.03	0.57	-0.64
Years of Experience in LOA	66	0-32	11.19	7.77	0.71	-0.05
Present Age	62	28-66	51.37	9.3	-0.54	-0.42
Gender						

Female	36	23-51	37.61	7.52	-0.11	-0.83
Male	14	18-47	31.14	7.79	0.11	0.25
Race/Ethnicity						
American Indian/Alaskan Native	1	37-37	37	.	.	.
Asian /Pacific Islander	1	31-31	31	.	.	.
Black/African American	2	38-46	42	5.66	.	.
Hispanic American	3	37-39	38	1	0	.
White/Caucasian	44	18-51	35.34	8.43	0.03	-0.75
Academic Leaders						

INFLUENCE Subscale						
Demographic Characteristic	n	Range	Mean	SD	Skewness	Kurtosis
Position Type						
VP of Instruction	7	33-49	44.57	5.86	-1.53	2.15
Dean of Instruction	8	28-50	35.87	7.68	0.79	-0.12
Dean of Academic/Technical Program	10	33-51	43.7	5.72	-0.34	-0.19
Program Director	23	21-50	40	8.16	-0.75	-0.34
Primary CCCS Location						
ACC	8	28-48	38	7.63	-0.04	-1.6
CCCOnline	2	43-46	44.5	2.12	.	.
CNCC	1	40-40	40	.	.	.
CCA	3	33-42	39	5.19	-1.73	.
CCD	3	21-50	39	15.71	-1.61	.
FRCC	3	39-49	45.33	5.5	-1.67	.
LCC	0	.	.	.	.	.
MCC	5	29-49	38.8	9.81	0.22	-3.02
NJC	4	29-50	39.25	8.58	0.18	1.52
OJC	1	42-42	42	.	.	.
PPCC	4	45-51	49	2.83	-1.41	1.5
PCC	1	42-42	42	.	.	.
RRCC	3	39-50	44.67	5.51	-0.27	.
TSJC	10	28-48	38.8	7.45	-0.33	-1.67
Current Education Level						
Licensure or specialty degree	1	39-39	39	.	.	.

Associate Degree	1	46-46	46	.	.	.
Bachelor Degree	6	29-49	40.86	7.03	-0.51	-0.2
Master Degree	28	28-51	40.31	8.21	-0.32	-1.45
Doctoral Degree	16	21-50	41.31	7.89	-1.43	2.75
Years of Experience in LOA	66	0-32	11.19	7.77	0.71	-0.05
Present Age	62	28-66	51.37	9.3	-0.54	-0.42
Gender						
Female	36	28-51	42.21	6.99	-0.56	-0.9
Male	14	21-49	37.85	8.34	-0.79	-0.37
Race/Ethnicity						
American Indian/Alaskan Native	1	43-43	43	.	.	.
Asian /Pacific Islander	1	28-28	28	.	.	.
Black/African American	2	45-50	47.5	3.54	.	.
Hispanic American	3	30-46	39.33	8.33	-1.29	.
White/Caucasian	44	21-51	40.78	7.67	-0.62	-0.4
Academic Leaders						

EFFECT Subscale						
Demographic Characteristic	n	Range	Mean	SD	Skewness	Kurtosis
Position Type						
VP of Instruction	7	15-19	17.29	1.6	-0.31	-1.83
Dean of Instruction	11	7.-20	14.82	3.4	-1.04	2.14
Dean of Academic/Technical Program	10	11.-20	17.1	3.51	-0.8	-0.84
Program Director	24	9.-20	16.79	3.43	-1.12	0.32
Primary CCCS Location						
ACC	8	12.-19	15.75	2.6	-0.22	-1.7
CCCOnline	3	10.-20	15.67	5.13	-1.09	.
CNCC	1	20-20	20	.	.	.
CCA	4	7.-20	13.5	5.45	0	0.06
CCD	4	9.-20	15.5	4.65	1.19	2.12
FRCC	4	15-20	17	2.16	1.19	1.5
LCC	0	.	.	.	.	.
MCC	5	12.-19	16.6	2.79	-1.5	2.04
NJC	4	15-20	17.75	2.63	-0.12	-5.29

OJC	2	16-18	17	1.41	.	.
PPCC	5	7.-20	16.6	5.64	-1.78	2.99
PCC	1	17-17	17	.	.	.
RRCC	3	16-20	18.67	2.31	-1.73	1.23
TSJC	9	10.-20	16	3.57	-0.763	-0.69
Current Education Level						
Licensure or specialty degree	1	15-15	15	.	.	.
Associate Degree	1	15-15	15	.	.	.
Bachelor Degree	6	15-20	17.83	2.04	-0.3	-1.42
Master Degree	28	10.-20	16.86	3.23	-0.82	-0.33
Doctoral Degree	16	7.-20	14.94	4.27	-0.88	-0.45
Years of Experience in LOA	66	0-32	11.19	7.77	0.71	-0.05
Present Age	62	28-66	51.37	9.3	-0.54	-0.42
Gender						
Female	37	7.-20	16.76	3.22	-1.14	1.15
Male	15	7.-20	15.2	4.16	-0.66	-0.6
Race/Ethnicity						
American Indian/Alaskan Native	1	18-18	18	.	.	.
Asian /Pacific Islander	1	14-14	14	.	.	.
Black/African American	2	16-20	18	2.82	.	.
Hispanic American	3	12.-17	14.67	2.52	-0.59	.
White/Caucasian	46	7.-20	16.37	3.65	-1.08	0.45

Appendix AA: Faculty Descriptives by Subscale

Faculty						
Demographic characteristic	*n*	Range	Mean	SD	Skewness	Kurtosis
FUNCTION Subscale						
Position Type						
Full-time	219	18-52	36.25	6.9	-0.17	-0.16
Part-time	172	13-52	35.16	7.87	-0.24	-0.24
Primary CCCS Location						
ACC	41	23-51	37.2	5.81	-0.23	0.23
CCCOnline	80	18-52	35.1	7.99	0.04	-0.46
CNCC	6	30-50	40.67	6.74	-0.33	0.84
CCA	29	22-46	35.79	6.19	-0.72	-0.26
CCD	21	19-52	35.05	7.72	0.14	0.05
FRCC	109	13-52	35.65	8.05	-0.33	-0.08
LCC	1	34-34	34	.	.	.
MCC	7	23-48	35.29	9.2	0.46	-0.9
NJC	20	21-49	35.85	8.66	-0.22	-1.18
OJC	14	28-52	36.93	6.06	0.96	1.82
PPCC	13	24-44	35.23	5.82	-0.2	-0.29
PCC	7	27-46	37.28	5.76	-0.51	1.8
RRCC	16	27-47	38.25	4.97	-0.67	0.57
TSJC	27	18-45	33.48	6.47	-0.6	0.73
Current Education Level						
Licensure or specialty degree	8	31-45	38.38	4.47	-0.05	-0.21
Associate Degree	15	19-45	32	9	0.01	-1.65
Bachelor Degree	41	23-52	37.88	6.45	0.21	-0.03
Master Degree	268	13-52	35.56	7.41	-0.28	-0.13
Doctoral Degree	58	19-52	35.93	7.22	0.09	-0.19
Years of Experience in LOA	541	0-50	8.57	7.73	1.51	3
Present Age	540	26-79	48.05	11.15	-0.15	-0.2
Gender						
Female	259	13-52	35.36	7.41	-0.27	-0.06
Male	128	19-52	36.58	7.23	-0.16	-0.37

Race/Ethnicity						
American Indian/Alaskan Native	3	25-40	35	8.66	-1.73	.
Asian /Pacific Islander	11	27-52	38.27	7.1	0.25	0.39
Black/African American	8	19-45	33.75	9.5	-0.65	-1.21
Hispanic American	15	28-52	37.53	6.59	0.48	0.8
White/Caucasian	351	13-52	35.72	7.35	-0.24	-0.15

Demographic characteristic	*n*	Range	Mean	SD	Skewness	Kurtosis
INFLUENCE subscale						
Position Type						
Full-time	210	20-52	38.54	6.96	-0.19	-0.264
Part-time	163	13-52	37.45	8.35	-0.904	0.7
Primary CCCS Location						
ACC	35	23-52	37.74	6.39	0.11	0.78
CCCOnline	78	13-52	38.28	8	-0.98	1.26
CNCC	7	37-51	42.43	4.5	1.17	1.84
CCA	27	20-48	38.26	6.62	-1.02	0.88
CCD	19	17-52	38.53	9.35	-0.56	-0.05
FRCC	102	14-52	37.26	8.34	-0.63	0.29
LCC	3	36-46	40	5.29	1.46	.
MCC	7	33-51	42.57	6.85	-0.07	-1.59
NJC	18	22-51	38.72	7.45	-0.7	0.91
OJC	16	26-52	39.31	6.83	0.51	0.46
PPCC	11	34-47	40	3.38	0.59	1.46
PCC	7	27-49	38.14	7.49	0.01	-0.58
RRCC	17	29-52	40.23	6.45	0.02	-0.42
TSJC	26	20-50	34.58	7.74	-0.135	0.6
Current Education Level						
Licensure or specialty degree	9	33-50	41	5.43	-0.11	-0.38
Associate Degree	13	23-46	36.62	7.39	-0.49	-0.76
Bachelor Degree	33	25-52	39.21	6.94	-0.08	-0.48
Master Degree	259	13-52	38.23	7.77	-0.78	0.82

Doctoral Degree	59	16-52	36.29	7.52	-0.15	0.09
Years of Experience in LOA	541	0-50	8.57	7.73	1.51	3
Present Age	540	26-79	48.05	11.15	-0.15	-0.2
Gender						
Female	253	13-52	37.84	7.54	-0.6	0.39
Male	115	16-52	38.58	7.86	-0.78	1.01
Race/Ethnicity						
American Indian/Alaskan Native	4	28-52	39.5	9.95	0.28	0.77
Asian /Pacific Islander	13	35-52	42	4.85	0.49	0.07
Black/African American	8	13-44	37	10.2	-2.31	5.82
Hispanic American	13	21-52	38.62	8.39	-0.34	0.5
White/Caucasian	331	14-52	37.94	7.59	-0.6	0.39

Demographic characteristic	*n*	Range	Mean	SD	Skewness	Kurtosis
EFFECT subscale						
Position Type						
Full-time	228	5.-20	16.19	2.93	-0.69	0.314
Part-time	178	5.-20	16.38	3.12	-1.15	1.75
Primary CCCS Location						
ACC	41	9.-20	15.58	2.85	-0.16	-0.54
CCCOnline	85	9.-20	17.04	2.79	-0.91	0.37
CNCC	8	15-20	17.38	1.51	0.15	0.66
CCA	29	11.-20	16.59	2.34	-0.45	-0.07
CCD	22	12.-20	16.68	2.63	-0.09	-1.39
FRCC	109	5.-20	15.69	3.19	-0.75	0.66
LCC	2	10.-20	15	7.07	1.46	.
MCC	6	16-20	17.67	1.86	0.72	-1.88
NJC	22	10.-20	16.32	3.01	-0.65	-0.61
OJC	17	14-20	17.82	2.13	-0.53	-1.28
PPCC	14	7.-20	15.5	3.74	-0.83	0.48
PCC	7	14-20	17.14	2.19	-0.25	-1.37
RRCC	17	10.-20	17.06	2.82	-1.13	0.92

TSJC	27	6.-19	15.11	3.26	-1.54	3.05
Current Education Level						
Licensure or specialty degree	8	12.-20	17	2.78	-0.64	-0.16
Associate Degree	15	5.-20	15.53	3.66	-1.7	4.32
Bachelor Degree	39	12.-20	16.62	2.51	-0.27	-1.16
Master Degree	281	6.-20	16.34	2.9	-0.75	0.38
Doctoral Degree	62	5.-20	15.69	3.63	-0.96	0.81
Years of Experience in LOA	541	0-50	8.57	7.73	1.51	3
Present Age	540	26-79	48.05	11.15	-0.15	-0.2
Gender						
Female	272	5.-20	16.04	3.14	-0.92	1.08
Male	129	9.-20	16.68	2.73	-0.66	-0.27
Race/Ethnicity						
American Indian/Alaskan Native	5	15-20	17.4	2.3	-0.2	-2.72
Asian /Pacific Islander	13	12.-20	16.77	2.65	-0.4	-1.01
Black/African American	10	7.-20	16.5	3.69	-2.22	5.54
Hispanic American	16	12.-19	16.13	2.03	-0.08	-0.39
White/Caucasian	359	5.-20	16.23	3.07	-0.86	0.82

Appendix BB: Commentary from Research Question 4

Q1. In what learning outcomes assessment practices do you engage?
Faculty comments
Service learning projects
Projects
Written lesson plans and sample activities
Quizzes
Group projects
Online Research for reliable consistent teaching resources for each of the 10 weeks during the semester.
Student evaluations
Concept mapping
Digital Storytelling
Final Projects, Presentations
Visual depictions of concepts
Flipped classroom
I also provide in-take forms and post-session assessment for students in the Writing Center
Group work (not projects), and exercises such as Jigsaw exercises
End of Program Exams (National Accrediting Agency)
Online discussion question that I evaluate understanding of a concept.
Research Papers
It varies greatly by course and subject
Design projects
Written Response (non-essay)
Abilities to apply learned information to a specific outcome (i.e.: scenarios, crime scenes, "real life" cases)
The creation of artifacts
1 minute essay, clear vs. muddy exit ticket
Embodiments - becoming a person who is studied and answering contemporary question; also service learning experiences
Group Quizzes and Standardized Final Exam
Case Studies
Oral presentations
In class practice with worksheets in groups
The performance of my student's business.

Oral and Digital presentations

Analytical primary document lab reports

Group presentations, reflective writing, assignment assessments

Critical thinking and written communication assessment using standardized rubrics

Creative projects

Game style

Lab Reports and Case Studies

Artifacts; Presentations

Written research papers using MLA format

Service Learning, Community Projects

Q2. Why do you engage with these practices?
Faculty comments
As a sample of hands-on learning for students who will be working with young children. Young children are hands-on learners. If students experience activity-based learning, they are better able to practice it in the field.
Accreditation
Exposure to additional resources to teach STEM based topics.
Encourage collaboration among students
We longitudinally track our students - if they are successful in long term ed goals then we use in feedback loop
Some of the assessments are required by accreditation
To encourage complex thinking
Helps meet specific student needs and identify areas where we missed the boat
Make subject relevant to contemporary social issues; enhance critical thinking skills
Online course requirements
Build camaraderie among students
I want my students to succeed.
We all learn in different ways. I want to reach all my students.
It's required by college for each discipline for accreditation

Q3. How do you know student learning has occurred?
Faculty comments
Quizzes with essay questions directly related to how the online research will impact the children they teach immediately.
Practical ability. Demonstrating that they have mastered the material by completing hands on activities
Students can speak/understand intelligently on the topic

A feel in class. The push is on for all to pass no matter what!

Again long term historic success by students who achieve successful academic transfer, job placement and degrees/jobs is how we measure collegiate learning in our area.

Licensing boards results

Evidence for complex thinking can be found in a variety of places, but is not assessed well using traditional assessment methodologies.

Reports from group supervisors with whom the student worked

Increase in test/quiz scores by dramatic amounts

We participate in very dynamic interaction with intense subject matter.

National standardized Exam results

Assessment is part of teaching. We don't use it to score points with anyone but students so we can help them learn in the best ways possible

I ask the students. A few times per year - what was valuable, what wasn't.

National Registry Exam Pass Rates

Q4. What kind of data inform changes you make to your teaching practices?
Faculty comments

Feedback from peer observers and professional development

Department meetings, Advisory Committee Meetings

Rewriting of the course to reflect additional skill and learning requirements.

Student feedback

Students ability to acquire industry certifications or license

Student liking of the subject

Feedback from sources I do not find valid and for the wrong reasons.

Persistence rates

Reports from students who have transferred to 4-year schools

Exam question statistics

Employer needs - required skills or aptitudes

Overall student engagement

The quality of discussion, questions students ask, students' ability to explain, apply, and discuss implications. communication in a variety of forms (artifacts, essays, group discussion, reflective writing, write-to-learn activities, etc...) can demonstrate complex thinking.

In the last five years, I have not seen course evaluations. Nor have I EVER, in 13 years of teaching at FRCC, been observed teaching or received ANY type of feedback or evaluation from my dept. chair. or anyone else.

End of year discussion with whole class on what worked and did not

Peer feedback

Self evaluation. I know when something works or doesn't.

I receive ZERO Institutional input. It is only my "gut" feelings, based on 30 years of field application

I will always hope for Student Honors.

Student Engagement

Monitored results of curriculum changes

Classroom Assessment Techniques (CAT's)